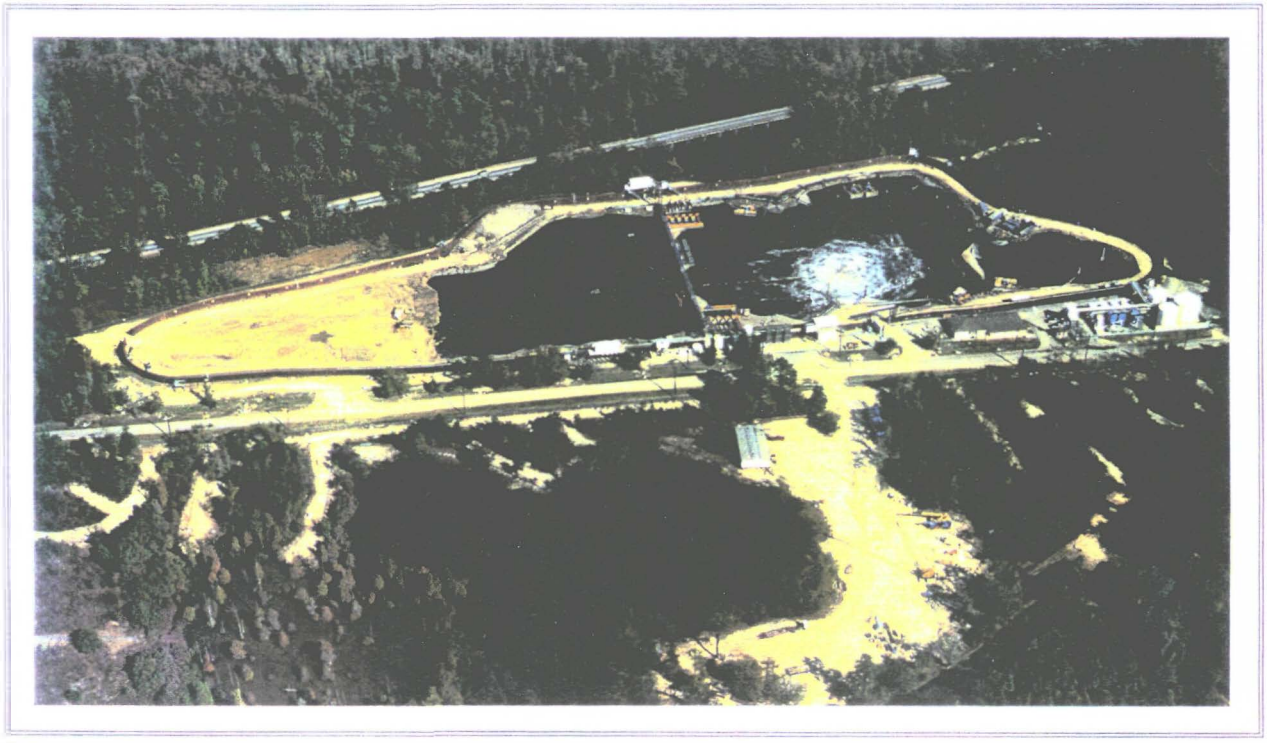
APPENDIX NOT INCLUDED

REDACTED VERSION

French Ltd. Project

FLTG, Inc.
Crosby, Texas

MONTHLY PROGRESS REPORT



Submitted to:

U.S. Environmental Protection Agency - Region 6
and
Texas Natural Resource Conservation Commission

September, 1994

French Ltd. Project

FLTG, Inc.

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Samples Dated October 1-29, 1994

Project I.D.	Date Received	Project I.D.	Date Received
M03A0260	09/01/94	M03A0267	09/28/94
M03A0261	09/01/94	M03A0268	09/28/94
S12C0025	09/01/94	M04A0017	09/28/94
S16A0006	09/01/94	M04A0018	09/28/94
M03A0262	09/06/94	M04B0013	09/28/94
M03A0263	09/07/94	M04B0014	09/28/94
M03A0264	09/13/94	M04C0013	09/28/94
M03A0265	09/16/94	M04A0019	09/29/94
M03A0266	09/21/94	M04C0014	09/29/94

1.0 INTRODUCTION

This report covers the activities of FLTG, Inc. and the French Limited Project for September, 1994. FLTG, Inc. manages the project for the French Limited Task Group of Potentially Responsible Parties.

During September, 1994, the project team focused on the following activities and issues:

- Health, Safety, and Quality.
- Safety awareness.
- Contractor safety.
- HAZOP of daily work assignments.
- Detecting and correcting work place hazards.
- Response to changing site conditions.
- Safe lifting procedures.
- Slipping, tripping, and falling hazards.
- Safe work practices in congested conditions.
- Working around moving equipment.
- Treatment of Cell D/F water to meet effluent specifications.
- Land application of Cell D water.
- Backfill Cell F.
- Maintain DO, OUR, HMB, and plate count in Cell F.

- Lagoon remediation completion report.
- Vegetation evaluation in Cell E.
- Operation and maintenance of the aquifer remediation system.
- In-situ aquifer bioremediation.
- INT zone remediation to the southwest.
- Potable water well sampling and analyses.
- Focused alternative water supply.
- DNAPL risk assessment and feasibility study.
- Construction of INT-11 containment wall.
- Water treatment plant operation and maintenance.
- Management of carbon blending system to maintain effluent quality.
- Operation of the data base management system.
- Wetlands restoration design.
- Wetlands restoration site permitting.
- This report includes:
    - A summary of September activities, issues, and progress.
    - Lagoon Demobilization activities, issues, and progress.
    - Groundwater and Subsoil Remediation activities, issues, and progress.
    - Groundwater Treatment Plant activities, issues, and progress.

- Ambient Air Management status.
- QA/QC status and data.
- Site management activities, issues, and progress.
- Wetlands restoration activities, issues, and progress.

2.0 SUMMARY

2.1 Summary of Activities and Progress

2.1.1 Health and Safety

There were no personal injury incidents.

All site workers earned the September safety bonus.

Conducted safety meetings and job inspections at the start of each shift; reviewed safety issues before starting all jobs.

All employees and contractors attended daily safety meetings.

Conducted daily mini-HAZOP of all specific jobs.

Supervision made 206 specific on-the-job safety contacts.

Emphasized slips, trips, and falls in congested work areas.

Inspected and certified all fire extinguishers.

Inspected all contractor equipment before on-site use.

Inspected all vendor delivery trucks before site entry.

Emphasized the hazards and precautions associated with working around moving equipment.

Conducted 26 specific health and safety inspections.

Logged all safety issues each shift; less than 24-hour response to all safety issues.

Continued lottery ticket daily safety awareness incentive program; all regular site employees and regular contractors receive a Texas lottery ticket each day; tickets can be "lost" due to safety violations; employee response continues to be excellent.

Conducted personnel exposure monitoring, and all results were within acceptable levels. The most recent results are in Table 2-1.

2.1.2 Quality/QAQC/Data Base Management

The total quality process was used. The status of the goals is shown on Table 2-2.

Raw data is being validated as per the plan.

The data base management system operated full on-line with no major problems or delays.

There were no data or reports rejected due to errors.

American Analytical continued to provide data on time.

2.1.3 Lagoon Remediation

Maintained a high level of biological activity in Cell D and in Cell F; OUR, HMB, and plate counts were high. Added O_2 to Cell D and Cell F using downdraft aerators. Bottom profiles indicate low levels of soft biomass.

Isolated Cell D from Cell F using backfill material.

The Lefco unit treated and discharged about 2.9 million gallons of water; the Lefco units operated with only minor problems, but with more frequent cleaning cycles due to increased TOC and TSS in the Cell F water.

About 9,860 cubic yards of backfill were placed in Cell F.

The cypress trees in Cell E are performing better than the river birch trees; plans were finalized to test cottonwood trees.

Tested floodwall gate closure.

Started land application of "clean" Cell D water in the re-vegetated Cell E area.

2.1.4 Ambient Air Management

Ambient air quality was manually checked daily with portable analyzers, and no response action was required.

Air quality was continuously monitored in all potential exposure areas.

Time-integrated samples were collected in three work areas, and the results indicated no exposure; the data is shown in Table 2-1.

2.1.5 Aquifer Remediation

Monitored status of DNAPL plumes.

DNAPL flow to S1-12, S1-13 and S1-16 continues to be erratic.

DNAPL flow in S1-16 has remained low.

Repaired direct drive pump on S1-16 well on two occasions

Continued work on DNAPL FS report.

Started performance testing of INT-11 wall.

Continued routine S1 and INT oxygen and nutrient injection.

Increased INT zone injection rates by 30%.

Started installation of an additional injection water supply well on the west end of the site.

Continued to evaluate ways to increase INT production rates.

Developed a work plan to pressure fracture the INT zone near low producing INT wells.

Operated vacuum-enhanced pumping systems for INT wells.

Issued weekly well status and performance reports.

Inspected and adjusted all wells each day.

Continued daily maintenance of recovery and injection wells.

Completed monthly well measurements and sampling; TOC results show a steady decrease in concentration.

Maintained O_2 content of injection water at about 40-45 ppm.

Maintained phreatofilic trees in Cell E area.

Continue pulse pumping in sections of the S1 zone South of Gulf Pump Road; the results continue to look positive; permanently shut off three more S1 production wells that meet the clean-up requirements.

Replaced RD-2 with a deep potable water well, screened below the Beaumont clay. Closed out RD-2. Connected the residents who used RD-2 to the new deep well.

2.1.6 Groundwater Treatment

The carbon blending system operated with no problems; the amount of effluent water requiring carbon treatment decreased as the treatment plant influent water TOC decreased.

The water treatment plant operated 98% of the time; the downtime was due to carbon filter change-out.

The water treatment plant effluent data is shown in Table 2-3.

TOC input to T-101 continued to decrease as the flows from the wells inside the floodwall decreased and as the TOC decreased from most wells.

The process operators collected all the process water and ground water samples.

2.1.7 Wetlands Restoration

The agencies approved the final restoration design.

Continued plant species identification and sourcing.

The Corp. of Engineers issued the 404 permit for the Brownwood project.

Worked with the city of Baytown to acquire the six lots in the center of the project.

Reviewed the bids for the site civil work, and awarded the work to Remedial Constructors.

2.1.8 Site Management and Issues

Used the on-site laboratory to process all the operational control samples.

Reviewed lagoon and aquifer progress and issues in detail with EPA and TNRCC on a regular basis.

Validated all analytical data as per the QAQC plan.

Continued equipment salvage and sales; several site visits were made by interested parties.

Reviewed project status and issues each day to ensure focus on critical issues - safety, quality and cost.

Issued weekly cost, schedule, and maintenance reports.

Reviewed progress on issues and action plans each week.

Reduced technical support MH's.

Tested the flood gate on one occasion.

TABLE 2-1

Ambient Air Management
Time Integrated Exposure Data

Compound	PEL 8 hour PPM	M01D0046 14-Sep-94 GWT Operator		M01D0046 14-Sep-94 Rochem Oper.		M01D0046 14-Sep-94 Well Operator	
		% of PEL	PPM	% of PEL	PPM	% of PEL	PPM
Chloromethane	50	0.000	0.000	0.000	0.000	0.000	0.000
Bromomethane	5	0.000	0.000	0.000	0.000	0.000	0.000
Vinyl chloride	1	0.000	0.000	0.000	0.000	0.000	0.000
Chloroethane	1000	0.000	0.000	0.000	0.000	0.000	0.000
Dichloromethane	50	0.000	0.000	0.000	0.000	0.000	0.000
Acetone	750	0.000	0.000	0.002	0.011	0.002	0.012
Carbon disulfide	10	0.000	0.000	0.000	0.000	0.000	0.000
1,1-Dichloroethene	5	0.000	0.000	0.000	0.000	2.201	0.110
1,1-Dichloroethane	100	0.001	0.001	0.000	0.000	0.000	0.000
trans-1,2-Dichloroethe	200	0.003	0.006	0.004	0.007	0.002	0.004
Chloroform	10	0.068	0.007	0.005	0.000	0.015	0.002
1,2-Dichloroethane	10	0.016	0.002	0.000	0.000	0.005	0.001
2-Butanone	200	0.001	0.003	0.003	0.006	0.000	0.000
1,1,1-Trichloroethane	350	0.005	0.019	0.000	0.001	0.098	0.343
Carbon Tetrachloride	5	0.010	0.001	0.005	0.000	0.008	0.000
Vinyl acetate	10	0.000	0.000	0.000	0.000	0.000	0.000
Bromodichloromethane			0.000		0.000		0.000
1,2-Dichloropropane	75	0.000	0.000	0.000	0.000	0.000	0.000
cis-1,3-Dichloropropen	1	0.000	0.000	0.000	0.000	0.000	0.000
Trichloroethene	50	0.001	0.001	0.001	0.001	0.000	0.000
Dibromochloromethane			0.000		0.000		0.000
1,1,2-Trichloroethane	10	0.000	0.000	0.000	0.000	0.000	0.000
Benzene	1	0.183	0.002	0.252	0.003	0.196	0.002
trans-1,3-Dichloroprop	1	0.000	0.000	0.000	0.000	0.000	0.000
2-Chloroethylvinyl ether			0.000		0.000		0.000
Bromoform	0.5	0.064	0.000	0.000	0.000	0.000	0.000
4-Methyl-2-pentanone	50	0.001	0.000	0.000	0.000	0.000	0.000
2-Hexanone	5	0.012	0.001	0.000	0.000	0.000	0.000
Tetrachloroethene	50	0.001	0.000	0.001	0.000	0.000	0.000
1,1,2,2-Tetrachloroet	1	0.072	0.001	0.000	0.000	0.000	0.000
Toluene	100	0.003	0.003	0.003	0.003	0.004	0.004
Chlorobenzene	10	0.000	0.000	0.000	0.000	0.000	0.000
Ethylbenzene	100	0.001	0.001	0.001	0.001	0.001	0.001
Styrene	50	0.001	0.001	0.001	0.000	0.000	0.000
Xylene (total)	100	0.001	0.001	0.001	0.001	0.002	0.002
Hexane			0.122		0.004		0.010

TABLE 2-2

Project Quality

Status as of 9/30/94		Goals	
Yes	1)	No OSHA recordable injuries.	
Attention	2)	100% compliance with all safety rules and procedures.	
Yes	3)	No citations for violations of applicable, relevant and appropriate regulations.	
Yes	4)	100% attendance (including subcontractors) at daily safety meetings.	
Attention	5)	Less than 24-hour response time on health and safety issues.	
Yes	6)	100% sign-in and security clearance.	
Yes	7)	No invalidation of reported data due to QA/QC issues.	
	8)	Spend less than:	MH/Month
Yes		• Direct hire	3,000
Yes		• FLTG management (5 people)	700
Yes/Attention		• Technical support (3 people)	600
Yes		• Maintenance support	120
Yes	9)	Pump at least 140 gpm; inject at least 100 gpm.	
Yes	10)	Remediate shallow alluvial zone aquifer in 60 months.	
Yes	11)	Hold analytical cost to less than $20,000 per month (1994 only).	
Yes	12)	No unscheduled overtime (per day or per week).	
Yes	13)	No agency contacts which require 3rd party resolution.	
Yes	14)	Documented training of site personnel for all work assignments.	
Yes	15)	Weekly audit of actual performance versus goals.	

TABLE 2-3
Treated Water Results Summary

Collected	Set No.	pH (6-9)		TSS 5 PPM		TOC 55 PPM		O&G 15 PPM		Benzene 150 PPB		Chlor HC's 500 PPB		Total PCBs 0.65 PPB		Napthalene 300 PPB	
		Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg
13-Jun-94	M03A0244	7.64		7.		40.1		2.5		6.		602.		.16		5.	
16-Jun-94	M03A0245	7.54		6.		20.9		2.5		2.5		440.		.16		5.	
20-Jun-94	M03A0246	7.44		1.		36.7		2.5		6.		287.		.16		5.	
23-Jun-94	M03A0247	7.38		3.		37.9		2.5		6.		301.		.16		5.	
27-Jun-94	M03A0248	7.36		5.		43.6		2.5		6.		401.		.16		5.	
30-Jun-94	M03A0249	7.43		4.		29.		2.5		2.5		108.		.16		5.	
4-Jul-94	M03A0250	7.79		9.		21.4		2.5		6.		201.		.16		5.	
7-Jul-94	M03A0251	7.47		9.		30.1		2.5		2.5		181.		.16		5.	
11-Jul-94	M03A0252	7.44	7.5	1.	5.	26.8	31.83	2.5	2.5	2.5	4.44	236.	306	.16	.16	5.	5.
14-Jul-94	M03A0253	7.28	7.46	1.	4.33	43.3	32.19	2.5	2.5	6.	4.44	223.	264	.16	.16	5.	5.
18-Jul-94	M03A0254	7.24	7.43	3.	4.	31.9	33.41	2.5	2.5	6.	4.83	348.	254	.16	.16	5.	5.
21-Jul-94	M03A0255	7.27	7.41	1.	4.	43.6	34.18	2.5	2.5	6.	4.83	228.	247	.16	.16	5.	5.
25-Jul-94	M03A0256	7.27	7.39	7.	4.44	38.2	34.21	2.5	2.5	2.5	4.44	204.	237	.16	.16	5.	5.
28-Jul-94	M03A0257	7.31	7.39	4.	4.33	32.5	32.98	2.5	2.5	2.5	4.06	206.	215	.16	.16	5.	5.
1-Aug-94	M03A0258	7.36	7.38	8.	4.78	33.9	33.52	2.5	2.5	6.	4.44	313.	238	.16	.16	5.	5.
4-Aug-94	M03A0259	7.3	7.33	2.	4.	33.6	34.88	2.5	2.5	2.5	4.06	203.	238	.16	.16	5.	5.
8-Aug-94	M03A0260	7.25	7.3	3.	3.33	65.6	38.82	2.5	2.5	2.5	4.06	145.	234	.16	.16	5.	5.
11-Aug-94	M03A0261	7.16	7.27	2.	3.44	81.	44.84	2.5	2.5	2.5	4.06	292.	240	.16	.16	5.	5.
15-Aug-94	M03A0262	7.13	7.25	1.	3.44	76.3	48.51	2.5	2.5	6.	4.06	342.	253	.16	.16	5.	5.
18-Aug-94	M03A0263	7.25	7.26	1.	3.22	26.1	47.87	2.5	2.5	2.5	3.67	104.	226	.16	.16	5.	5.
22-Aug-94	M03A0264	7.33	7.26	1.	3.22	15.	44.69	2.5	2.5	2.5	3.28	242.	228	.16	.16	5.	5.
25-Aug-94	M03A0265	7.46	7.28	2.	2.67	34.7	44.3	2.5	2.5	2.5	3.28	102.	217	.16	.16	5.	5.
29-Aug-94	M03A0266	7.37	7.29	10.	3.33	23.5	43.3	2.5	2.5	2.5	3.28	56.	200	.16	.16	5.	5.
1-Sep-94	M03A0267	7.54	7.31	1.	2.56	23.7	42.17	2.5	2.5	2.5	2.89	44.	170	.16	.16	5.	5.
5-Sep-94	M03A0268	7.69	7.35	3.	2.67	37.2	42.57	2.5	2.5	2.5	2.89	152.	164	.16	.16	5.	5.
8-Sep-94	M03A0269	7.58	7.39	2.	2.56	37.8	39.48	2.5	2.5	2.5	2.89	52.	154	.16	.16	5.	5.
12-Sep-94	M03A0270	7.14	7.39	3.	2.67	38.7	34.78	2.5	2.5	2.5	2.89	152.	138	.16	.16	5.	5.
15-Sep-94	M03A0271	7.25	7.4	2.	2.78	38.3	30.56	2.5	2.5	2.5	2.5	680.	176	.16	.16	5.	5.
19-Sep-94	M03A0272	7.59	7.44	46.	7.78	36.2	31.68	2.5	2.5	6.	2.89	521.	222	.16	.16	5.	5.
22-Sep-94	M03A0273	7.55	7.46	5.	8.22	38.2	34.26	2.5	2.5	6.	3.28	524.	254	.16	.16	5.	5.
26-Sep-94	M03A0274	7.19	7.43	4.	8.44	37.3	34.54	2.5	2.5	2.5	3.28	523.	300	.16	.16	5.	5.
29-Sep-94	M03A0275	7.31	7.43	6.	8.	47.8	37.24	2.5	2.5	2.5	3.28	937.	398	.16	.16	5.	5.
3-Oct-94	M03A0276	7.36	7.41														
6-Oct-94	M03A0277																

Chlorinated hydrocarbons value is sum of detected concentrations of 21 volatile chlorinated hydrocarbons on target compound list.

TABLE 2-3 (Continued)
Treated Water Results Summary

Collected	Set No.	As 150 PPB		Ba 200 PPB		Cd 50 PPB		Cr 500 PPB		Cu 15 PPB		Pb 66 PPB		Mn 300 PPB		Hg 1 PPB		Ni 148 PPB		Se 20 PPB		Ag 5 PPB		Zn 162 PPB	
		Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg
13-Jun-94	M03A0244	11.		82.		.8		13.		9.		1.		19.		.1		12.		1.		3.8		14.	
16-Jun-94	M03A0245	12.		94.		1.		1.		10.		1.		21.		.1		12.		1.		3.		7.	
20-Jun-94	M03A0246	9.7		116.		1.2		.9		12.		1.		14.		.1		10.		2.		2.8		6.	
23-Jun-94	M03A0247	14.		122.		1.5		.8		11.		1.		21.		.1		7.5		1.		2.5		11.	
27-Jun-94	M03A0248	10.		121.		1.5		9.		12.5		1.		18.		.1		9.6		1.		3.6		16.	
30-Jun-94	M03A0249	13.		108.		1.5		.3		7.		1.		9.		.1		8.		1.		3.		5.	
4-Jul-94	M03A0250	16.		68.5		.2		.3		3.5		.5		9.6		.1		3.1		1.		2.6		12.	
7-Jul-94	M03A0251	14.9		104.		.3		.8		11.		1.		20.		.1		5.		1.		3.		10.	
11-Jul-94	M03A0252	10.	12.3	110.	102.8	.5	.9	.5	3.	5.	9.	1.5	1.	10.	15.7	.1	.1	4.	7.9	1.5	1.2	3.	3.	10.	10.1
14-Jul-94	M03A0253	18.	13.1	105.	105.4	.3	.9	.3	1.5	6.	8.7	.8	1.	7.	14.4	.1	.1	4.5	7.1	.8	1.1	1.5	2.8	17.	10.4
18-Jul-94	M03A0254	10.	12.8	60.	101.6	.5	.8	.5	1.5	4.	8.	1.5	1.	10.	13.2	.1	.1	2.	6.	1.5	1.2	2.	2.7	10.	10.8
21-Jul-94	M03A0255	10.	12.9	100.	99.8	.5	.7	.5	1.4	6.	7.3	1.5	1.1	7.	12.4	.1	.1	7.	5.6	1.5	1.1	1.	2.5	10.	11.2
25-Jul-94	M03A0256	8.	12.2	110.	98.5	.3	.6	.3	1.4	3.	6.4	.8	1.1	6.	10.7	.1	.1	6.	5.5	2.	1.3	.5	2.2	6.	10.7
28-Jul-94	M03A0257	13.	12.5	64.	92.2	.3	.5	.6	.4	15.	6.7	.8	1.	29.	12.	.1	.1	6.	5.1	2.	1.4	.5	1.9	8.	9.8
1-Aug-94	M03A0258	8.	12.	100.	91.3	.3	.3	3.	.7	141.	21.6	4.	1.4	15.	12.6	.1	.1	5.	4.7	.8	1.3	.5	1.6	106.	21.
4-Aug-94	M03A0259	14.	11.8	104.	95.2	.3	.3	.3	.7	5.	21.8	.8	1.4	7.	12.3	.1	.1	11.	5.6	.8	1.3	.5	1.4	10.	20.8
8-Aug-94	M03A0260	11.	11.3	110.	95.9	.3	.3	1.5	.8	6.	21.2	.8	1.4	7.	10.9	.1	.1	15.	6.7	2.	1.4	.5	1.1	14.	21.2
11-Aug-94	M03A0261	14.	11.8	105.	95.3	.3	.3	1.	.9	3.	21.	.8	1.3	5.	10.3	.1	.1	10.	7.4	5.	1.8	.5	.8	12.	21.4
15-Aug-94	M03A0262	14.	11.3	94.	94.1	.3	.3	.3	.9	2.	20.6	.8	1.3	4.	10.	.1	.1	7.	7.7	.8	1.8	.5	.7	9.	20.6
18-Aug-94	M03A0263	14.	11.8	89.	97.3	.3	.3	1.	.9	5.	20.7	.8	1.2	3.	9.2	.1	.1	14.	9.	.8	1.7	.5	.6	12.	20.8
22-Aug-94	M03A0264	9.	11.7	70.	94.	.3	.3	.3	.9	10.5	21.2	.8	1.1	3.	8.8	.1	.1	2.	8.4	.8	1.6	.5	.5	5.	20.2
25-Aug-94	M03A0265	10.	11.9	88.	91.6	.3	.3	.3	.9	1.	20.9	.8	1.1	2.	8.3	.1	.1	3.	8.1	.8	1.5	.5	.5	3.	19.9
29-Aug-94	M03A0266	20.	12.7	80.	93.3	.3	.3	3.	1.2	5.	19.8	.8	1.1	.5	5.2	.1	.1	10.	8.6	1.5	1.4	.5	.5	12.	20.3
1-Sep-94	M03A0267	14.	13.3	70.	90.	.3	.3	1.	.9	2.	4.4	.8	.8	3.	3.8	.1	.1	7.	8.8	.8	1.4	.5	.5	5.	9.1
5-Sep-94	M03A0268	17.	13.7	62.	85.3	1.3	.4	2.5	1.2	1.3	4.	1.3	.8	5.	3.6	.1	.1	10.	8.7	1.3	1.5	2.5	.7	8.	8.9
8-Sep-94	M03A0269	10.	13.6	50.	78.7	1.3	.5	2.5	1.3	1.3	3.4	1.3	.9	4.	3.3	.1	.1	5.	7.6	1.3	1.4	2.5	.9	3.8	7.8
12-Sep-94	M03A0270	12.	13.3	45.	72.	1.3	.6	2.5	1.5	4.	3.6	1.3	.9	3.	3.1	.1	.1	2.5	6.7	1.3	1.	2.5	1.2	10.	7.5
15-Sep-94	M03A0271	13.	13.2	50.	67.1	1.3	.7	2.5	1.7	3.	3.7	1.3	1.	1.3	2.8	.1	.1	7.	6.7	1.3	1.1	2.5	1.4	24.	9.2
19-Sep-94	M03A0272	10.	12.8	54.	63.2	1.3	.8	2.5	1.9	4.	3.6	1.3	1.	11.	3.6	.1	.1	5.	5.7	1.3	1.1	2.5	1.6	10.	9.
22-Sep-94	M03A0273	12.	13.1	64.	62.6	1.3	.9	2.5	2.1	4.	2.8	1.3	1.1	22.	5.8	.1	.1	5.	6.1	1.3	1.2	2.5	1.8	11.	9.6
26-Sep-94	M03A0274	14.	13.6	61.	59.6	1.3	1.	2.5	2.4	1.3	2.9	1.3	1.1	4.	6.	.1	.1	5.	6.3	1.3	1.2	1.3	1.9	3.8	9.7
29-Sep-94	M03A0275	15.	13.	78.	59.3	1.3	1.1	2.5	2.3	1.3	2.5	1.3	1.2	5.	6.5	.1	.1	5.	5.7	1.3	1.2	2.5	2.1	10.	9.5
3-Oct-94	M03A0276																								
6-Oct-94	M03A0277																								

Metals values in PPB.

2.2 Problem Areas and Recommended Solutions

Problem	Solution
Maintain high level of safety awareness.	Continue daily lottery ticket program. Daily safety meetings. Supervisory safety contacts.
On-the-Job safety attention.	Contact all employees at least twice per day on safety issues. Review job details as work proceeds.
Hazard detection and response.	Safety inspections. HAZOP's on all jobs.
DNAPL migration in S1-16 and S1-13 area.	Maintain active pumping in S1-16 and S1-13 area to control DNAPL gradient; sheet pile wall has retarded migration.
Response action plan for DNAPL and DNAPL affected areas.	Issue FS report.
Low flow in some pumping and injection wells.	Test vacuum enhanced pumping. Increase injection pressure in some areas. Pressure fracture INT zone in selected areas.
Treatment of final water volume from Cell F.	Land application in Cell F backfill. Backup treatment of Rochem effluent in FLTG plant.
Aquifer compliance criteria.	Continued discussions of approaches.
Rebound of chemicals in S1 zone on west end.	Continued pulse pumping test in this zone.
Increase INT zone remediation rate.	Increase pumping and injection rates.

Six lots in wetlands plan area not controlled by the city.	Baytown is negotiating to purchase the remaining 1/3 of the six lots.

2.3 Problems Resolved

Problem	Solution
INT injection flow.	Increase injection pressure; install a third injection water supply well.
INT zone gradient control to southwest.	Install deep wells to replace RD-2.
Affected potable water at RD-2	Install deep well to replace RD-2.
Wetlands project permits	Corp. of Engineers issued 404 permit.

2.4 Deliverables Submitted

August, 1994 Monthly Report.

2.5 Upcoming/Ongoing Events and Activities

Daily safety meetings and inspections.

Lottery ticket safety awareness program.

Emphasis on changing weather conditions.

Emphasis on muscle strains and proper lifting/handling.

Respond to HAZOP audits.

Increase INT injection pressure and flow.

Evaluate vacuum-enhanced INT pumping.

Daily well pump checks and maintenance.

Evaluate pulse pumping in INT zone.

Pulse pumping in S1 zone.

Operate S1 and INT wells for expedited in-situ bioremediation.

Sample potable wells in Riverdale.

Sell and ship surplus equipment.

Continue dewater and backfill of Cell F.

Land application of Cell D water in Cell E backfill.

Evaluate vegetation in Cell E area.

Operate Data Base Management System.

Decontaminate scrap steel and pipe and sell.

Total Quality process.

Continue biological activity monitoring in S1 wells and INT wells.

Test permeability of INT-11 area containment wall.

Develop aquifer compliance criteria.

Continue QA/QC data confirmation.

Optimize carbon usage in Water Treatment Plant.

Develop lagoon closure plan.

Submit MCC-1 area remediation report.

Submit Cell D/F confirmation report.

Continue wetlands restoration project.

2.6 Key Staffing Changes

None.

2.7 Percent Complete

Research & Development	- 98%
Facilities	- 100%
Slough	- 100%
Subsoil Investigation	-100%
Floodwall	-100%
Lagoon Remediation	-100%
Groundwater	- 67%
Lagoon Dewatering/Fixation	- 90%
Water Treatment	- 62%
Wetlands	- 34%
Demobilization	- 59%
Monitoring	- 49%

2.8 Schedule

All deliverables are on schedule.

Complete active aquifer remediation by January 1, 1996.

2.9 Operations and Monitoring Data

The operations and monitoring data are submitted as parts of Sections 3.0, 4.0, 5.0, and 6.0 of this report, and the supporting data are stored in secure storage at the French project office.

2.10 Credits Accrued/Applied

Status of Credits

	Accrued this period	Accrued to date	Applied this period	Applied to date	Running total
December 1990	34	34	0	0	34
December 1991	0	100	0	0	100
December 1992	0	101	0	2	99
January 1993	0	101	0	2	99
February 1993	0	101	0	2	99
March 1993	0	101	0	2	99
April 1993	0	101	0	2	99
May 1993	0	101	0	2	99
June 1993	0	101	0	2	99
July 1993	0	101	2	4	97
August 1993	2	103	0	4	99
September 1993	0	103	0	4	99
October 1993	0	103	0	4	99
November 1993	1	104	0	4	100
December 1993	0	104	0	4	100
January 1994	0	104	0	4	100
February 1994	0	104	0	4	100
March 1994	0	104	0	4	100
April 1994	0	104	0	4	100
May 1994	0	104	0	4	100
June 1994	0	104	0	4	100
July 1994	5	109	0	4	105
August 1994	0	109	0	4	105
September 1994	0	109	0	4	105

2.11 Community Relations

Maintained 24-hour, call-in Hot Line.

Conducted four site tours for interested parties.

Reviewed site status with TAG consultant.

Contacted nearby local residents with update on site operation.

Contacted several Riverdale residents with water quality data.

Contacted specific Riverdale residents to review deep well installation.

3.0 LAGOON BIOREMEDIATION

3.1 Summary of Activities

Evaluated test plots of non-riparian phreatophytes in Cell E.

Continued to dewater and backfill Cell F; pumped and treated 2.9 million gallons and placed 9,860 yards of backfill.

Maintained DO, OUR, and HMB in Cell F to reduce the biomass.

Land applied about 610,000 gallons of "clean" Cell D water to Cell E.

Operated aerator in Cell D to expedite biomass degradation.

3.2 Problems and Response Action

Problem	Recommended Solution
Ground cover growth slow in Cell E.	Hydroseed a second time with Bermuda. Water frequently.
Final elevation of lagoon area.	Grade to tie into north and east sloughs.
Final Cell F water treatment.	Pump to Cell D and land apply in Cell D backfill.

3.3 Problems Resolved

None.

3.4 Deliverables Submitted

None.

3.5 Upcoming Events and Activities

Maintain pH, DO, OUR, and nutrient levels in Cell F and in Cell D.

Operate aerator/mixer in Cell F and in Cell D.

Continue to dewater and backfill Cell F.

Land apply Cell D water in the Cell E backfill.

Continue to dewater Cell D.

Re-hydroseed Cell E if required.

Maintain trees in Cell E.

Plant cottonwood trees in Cell E as a test.

4.0 GROUNDWATER AND SUBSOIL REMEDIATION

4.1 Summary of Activities

4.1.1 Operation of Production and Injection Well Systems

Operation of the production and injection wells systems during September 1994 is summarized in Table 4-1. Flows from the production well system are summarized in Table 4-2 and Figure 4-1. Flows into the injection well system are summarized in Table 4-3 and Figure 4-2. Individual well flows are summarized in Table 4-4. There were no well additions or changes in September.

4.1.2 Operational Monitoring

Operational monitoring associated with the groundwater and subsoil remediation system during September 1994 is summarized in Table 4-5.

4.1.3 Data Management and Evaluation

Operational monitoring data from the groundwater and subsoil remediation system for this reporting period were entered into FLTG's database. Tables and figures for this section of the Monthly Progress Report were generated from this database.

4.2 Problems and Response Actions

The groundwater production and injection rates were both above target; six S1 production wells (S1-44, -45, -46, -47, -48, and -60) continued pulse pumping on a bi-weekly cycle (see Section 4.3.2 and Table 4-4). Due to backfilling and runoff control in the former lagoon area, groundwater levels there are declining steadily, causing reduced production well flows.

The vacuum-enhanced pumping (VEP) program was extended to wells INT-4, INT-5, and INT-6, on September 20. VEP has successfully enhanced flow rates at converted wells (See Section 4.4).

Nutrient and dissolved oxygen concentrations in injection water were either above or close to target levels. No specific response action is planned.

Table 4-1

Groundwater System Operation - September 1994 *Reporting Period: August 31 - September 25 (26 days)*
Production System
No. of production wells: 109 (S1 unit, 53; INT unit, 56) No. of operational wells: 97 (S1 unit, 41; INT unit, 56)
Changes in system since last month: started VEP at INT-4, -5, and -6 on 9/20
No. of wells off line having reached criteria: 9 (see Tables 4-4 and 4-7) Other wells off line: S1-2, -5, low water levels; S1-16, DNAPL pump down; 8 S1 and 7 INT wells back on line 9/14 following completion of INT-11 wall permeability test No. of wells on pulse pumping schedule: 6 (see Table 4-4) No. of wells pumping DNAPL: 0
Groundwater produced: 5.7 M gal; 211.8 M gal since startup based on main meter Total production rate: avg. 153 gpm (target 140 gpm); range 110 - 188 gpm S1 production rate: avg. 93 gpm; avg. 2.3 gpm per metered well INT production rate: avg. 60 gpm; avg. 1.1 gpm per metered well Total flow rate apportioned between S1 and INT units based on individual well meter readings
TOC (non-volatile) concentration avg. 101 ppm; range 48 - 207 ppm TOC mass removed: 4,873 lb. (349,821 lb. since startup); 187 lb./day
Injection System
No. of injection wells: 59 (S1 unit, 17; INT unit, 42)
Rainfall during period: 0.98"
Changes in system since last month: started drilling additional injection water supply well on 9/22
Groundwater injected: 5.5 M gal (108.1 M gal since startup) based on main meters Percentage of injected water recycled from RO plant: ~50%
S1 unit injected: 2.3 M gal (59.0 M gal since startup) INT unit injected: 3.2 M gal (49.1 M gal since startup) Total injection rate: avg. 146 gpm (target 100 gpm); range 118 - 186 gpm S1 injection rate: avg. 60 gpm; avg. 3.5 gpm per well INT injection rate: avg. 86 gpm; avg. 2.0 gpm per well Total flow rate apportioned between S1 and INT units based on individual well meter readings
Oxygen added to injection water: 10,110 lb.; 388 lb./day used (input efficiency = 22%) Avg. DO in injection water: S1, 50.9 ppm; INT, 47.5 ppm (target 40 ppm) ⇒ 85.7 lb./day
Volume of 4.7% w/w KNO_3 nutrient solution added to INT unit, S1-58, and S1-59: 11,013 gal Nutrient flow rate: 424 gpd, 0.25% of INT + S1-North inflow rate (target 0.38%) Calculated injection water NO_3 concentration: 33.3 mg/L-N (target 50 mg/L-N)

Note that average monthly flow rates at individual wells (calculated from weekly individual well flow meter readings) are not used directly to determine S1 and INT unit inflows and outflows, but are used to apportion total production and injection flows (calculated from daily main production and injection meter readings) between S1 and INT units.

Table 4-2

Daily Groundwater Production and TOC Removal
September 1994

Date	Project Day	T-101 Outflow Rate (FQ-101A) (gpd)	T-101 Outflow Rate (gpm)	T-101 Influent Ave. TOC (mg/L)	T-101 Influent TOC Loading (kg/day)
31-Aug	966	213,200	148	86	69
1-Sep	967	194,800	135	106	78
2-Sep	968	224,400	156	153	130
3-Sep	969	202,600	141	207	159
4-Sep	970	158,500	110	106	64
5-Sep	971	205,700	143	48	37
6-Sep	972	189,400	132	54	39
7-Sep	973	192,600	134	80	59
8-Sep	974	189,400	132	97	70
9-Sep	975	197,000	137	58	43
10-Sep	976	193,800	135	101	74
11-Sep	977	172,100	120	74	48
12-Sep	978	195,300	136	79	59
13-Sep	979	222,400	154	51	43
14-Sep	980	231,600	161	63	55
15-Sep	981	261,800	182	53	52
16-Sep	982	263,900	183	107	106
17-Sep	983	262,800	183	117	117
18-Sep	984	263,900	183	93	93
19-Sep	985	241,400	168	160	146
20-Sep	986	228,100	158	140	121
21-Sep	987	232,300	161	191	168
22-Sep	988	234,300	163	74	72
23-Sep	989	270,300	188	131	134
24-Sep	990	231,100	160	86	75
25-Sep	991	261,900	182	106	105
Month Average		220,562	153	101	85
Month Total		5,734,600			2,215

Table 4-3

Daily Injection Flows
September 1994

Date	Project Day	INT South INT-90/100 S1 North Injection Wells FQ905		INT North (not INT-90/100) Injection Wells Meter FQ-906		S1 South Injection Wells Meter FQ-909		Total Injection Rate	
		(gpd)	(gpm)	(gpd)	(gpm)	(gpd)	(gpm)	(gpd)	(gpm)
31-Aug	966	83,200	58	18,800	13	111,000	77	213,000	148
1-Sep	967	83,900	58	19,000	13	111,400	77	214,300	149
2-Sep	968	82,000	57	18,500	13	109,000	76	209,500	145
3-Sep	969	83,400	58	18,000	13	104,700	73	206,100	143
4-Sep	970	85,100	59	17,100	12	101,000	70	203,200	141
5-Sep	971	86,900	60	17,100	12	104,800	73	208,800	145
6-Sep	972	86,400	60	16,500	11	95,400	66	198,300	138
7-Sep	973	86,100	60	16,200	11	92,200	64	194,500	135
8-Sep	974	83,500	58	16,000	11	95,800	67	195,300	136
9-Sep	975	83,400	58	16,600	12	96,400	67	196,400	136
10-Sep	976	81,500	57	16,600	12	91,900	64	190,000	132
11-Sep	977	80,600	56	16,100	11	88,000	61	184,700	128
12-Sep	978	82,700	57	21,500	15	93,200	65	197,400	137
13-Sep	979	83,400	58	24,900	17	98,500	68	206,800	144
14-Sep	980	82,600	57	24,200	17	104,700	73	211,500	147
15-Sep	981	82,500	57	30,100	21	116,800	81	229,400	159
16-Sep	982	89,900	62	33,200	23	109,400	76	232,500	161
17-Sep	983	95,700	66	33,800	23	101,900	71	231,400	161
18-Sep	984	95,800	67	33,800	23	101,500	70	231,100	160
19-Sep	985	86,200	60	33,300	23	49,700	35	169,200	118
20-Sep	986	90,000	63	33,100	23	145,300	101	268,400	186
21-Sep	987	90,000	63	33,000	23	93,200	65	216,200	150
22-Sep	988	89,600	62	32,600	23	90,300	63	212,500	148
23-Sep	989	88,400	61	37,900	26	90,000	63	216,300	150
24-Sep	990	88,800	62	37,500	26	86,600	60	212,900	148
25-Sep	991	100,000	69	37,700	26	87,900	61	225,600	157
Month Average		86,600	60	25,119	17	98,869	69	210,588	146
Month Total		2,251,600		653,100		2,570,600		5,475,300	

Table 4-4

Average Production and Injection Flow Rates - September 1994

S1 Production Wells (53)

Well ID	gpm
S1-1	0.9
S1-2	OFF
S1-3	0.6
S1-4	0.1
S1-5	OFF
S1-6	1.6
S1-7	0.4
S1-8	0.3
S1-9	0.8
S1-10	1.1
S1-11	0.5
S1-12	0.8
S1-13	3.0
S1-14	0.3
S1-15	0.7
S1-16	OFF
S1-17	1.0
S1-18	1.5
S1-19	3.3
S1-20	0.4
S1-21	1.5
S1-22	0.3
S1-23	OFF
S1-24	1.0
S1-25	2.2
S1-26	6.5
S1-27	0.9
S1-28	4.8
S1-29	4.1
S1-30	3.4
S1-31	3.5
S1-32	2.7
S1-33	OFF
S1-34	OFF
S1-35	OFF
S1-36	OFF
S1-37	OFF
S1-38	OFF
S1-39	7.7
S1-40	7.3
S1-41	6.7
S1-42	OFF
S1-43	OFF
S1-44	8.9 PP
S1-45	3.3 PP
S1-46	10.5 PP
S1-47	1.4 PP
S1-48	1.3 PP
S1-60	2.5 PP
S1-61	0.3
S1-62	0.7
S1-63	1.3
S1-64	1.1
Total	**101.3**
Average*	**2.5**

* of metered wells

S1 Injection Wells (17)

Well ID	gpm
S1-49	1.0
S1-50	4.8
S1-51	0.5
S1-52	1.8
S1-53	OFF
S1-54	0.4
S1-55	4.5
S1-56	5.4
S1-57	4.0
S1-58	1.4
S1-59	1.2
S1-65	1.6
S1-66	4.0
S1-67	4.2
S1-68	2.4
S1-69	5.6
S1-70	2.6
Total	**45.4**
Average	**2.8**

Wells S1-58, 59, 65, 66, 67, 68, 69, and 70 receive oxygen- and nutrient-amended injection water

Subtotal	23.0

All other S1 wells receive oxygenated injection water only

Notes
OFF - well inoperative
NM - well running but not metered
PP - well in pulse pumping mode

INT Production Wells (56)

Well ID	gpm
INT-1	1.7
INT-2	0.0
INT-3	0.2
INT-4	0.1
INT-5	0.8
INT-6	0.1
INT-7	0.2
INT-8	1.0
INT-9	0.8
INT-10	0.6
INT-11	0.4
INT-12	0.5
INT-13	0.1
INT-14	3.1
INT-15	0.8
INT-16	0.2
INT-17	0.1
INT-18	0.5
INT-19	0.3
INT-20	0.3
INT-21	0.2
INT-22	0.5
INT-23	0.1
INT-24	0.4
INT-25	0.4
INT-26	0.4
INT-27	1.6
INT-28	0.4
INT-29	2.5
INT-30	1.4
INT-31	0.3
INT-32	0.7
INT-33	0.3
INT-55	2.0
INT-56	0.3
INT-57	1.0
INT-58	2.7
INT-59	0.2
INT-60	1.9
INT-61	1.0
INT-62	0.1
INT-65	1.2
INT-66	0.6
INT-205	1.5
INT-206	1.3
INT-207	1.3
INT-208	3.1
INT-209	0.4
INT-210	3.9
INT-211	2.5
INT-212	2.9
INT-213	1.8
INT-214	3.2
INT-215	6.5
INT-216	0.8
INT-217	4.9
Total	**66.1**
Average	**1.2**

INT Injection Wells (42)

Well ID	gpm
INT-63	0.0
INT-64	0.2
INT-71	0.4
INT-72	0.3
INT-73	0.3
INT-74	1.5
INT-75	2.0
INT-76	3.9
INT-77	3.7
INT-78	4.0
INT-79	0.8
INT-80	2.9
INT-81	3.9
INT-82	1.1
INT-83	1.2
INT-84	5.4
INT-85	1.2
INT-86	1.1
INT-87	0.8
INT-88	1.2
INT-89	1.0
INT-90	4.8
INT-91	1.1
INT-92	2.0
INT-93	1.6
INT-94	1.0
INT-95	2.0
INT-96	0.8
INT-97	1.5
INT-98	0.6
INT-99	0.7
INT-100	0.1
INT-201	0.3
INT-202	0.6
INT-203	0.4
INT-204	0.4
INT-218	1.7
INT-219	1.5
INT-220	1.1
INT-221	1.1
INT-222	3.3
INT-223	1.4
Total	**64.9**
Average	**1.5**

All INT injection wells receive oxygen- and nutrient-amended injection water

Note: total and average flow rates for S1 and INT units are corrected (per main flow meter readings) for use in Table 4-1.

Table 4-5

Operational Monitoring - September 1994

Activity	Frequency	Purpose
Check production and injection wells for pump, meter, and level control operation, injection pressure, gas buildup, and flow meter readings.	Daily	Identify and respond to individual well problems; maintain operating efficiency.
Read groundwater treatment plant inflow and outflow meters; nutrient injection flow meters; oxygen flows, pressure and temperature; and injection header back pressure.	Daily (shift changes)	Identify and respond to treatment plant problems; control nutrient and injection flow rates.
Measure T-101 influent and effluent TOC concentrations.	Daily (shift changes)	Track removal of TOC.
Measure rainfall.	Daily	Assists interpretation of water level maps.
Measure dissolved oxygen at 11 representative S1 and INT injection wells	Weekly	Main control for oxygen injection rate.
Sample T-101 influent for VOC, TOC, and nutrient analysis, (1) from all operating production wells, and (2) from all wells located outside the floodwall.	Monthly	Develop chemical mass balance.
Sample Rochem effluent for VOC analysis.	Monthly	Confirm that treated water is suitable for blending with injection water.
Monitor groundwater levels at all monitoring wells.	Monthly	Verify capture zones.
Monitor in-situ DO at all monitoring wells.	Monthly	Monitor breakthrough of aerobic conditions.
Sample groundwater at all production wells for on-site TOC and DO analysis.	Monthly	Track TOC removal and monitor breakthrough of aerobic conditions.
Sample groundwater at 18 monitoring and 12 production wells for VOC and nutrient analyses (per RN-80).	Quarterly	Track remedial progress: performed September 4 through 6.

Figure 4-1

Groundwater Production Rate

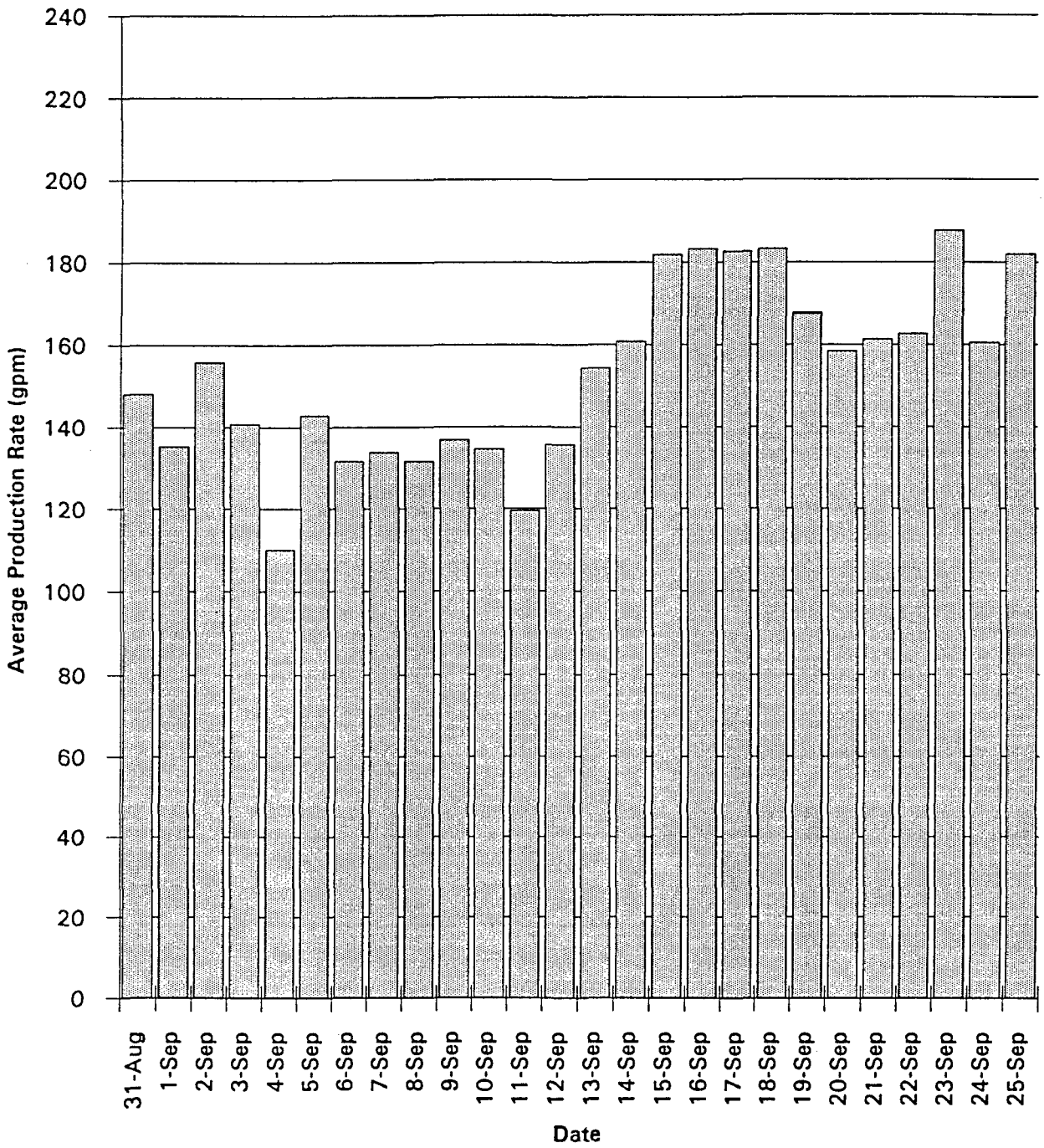
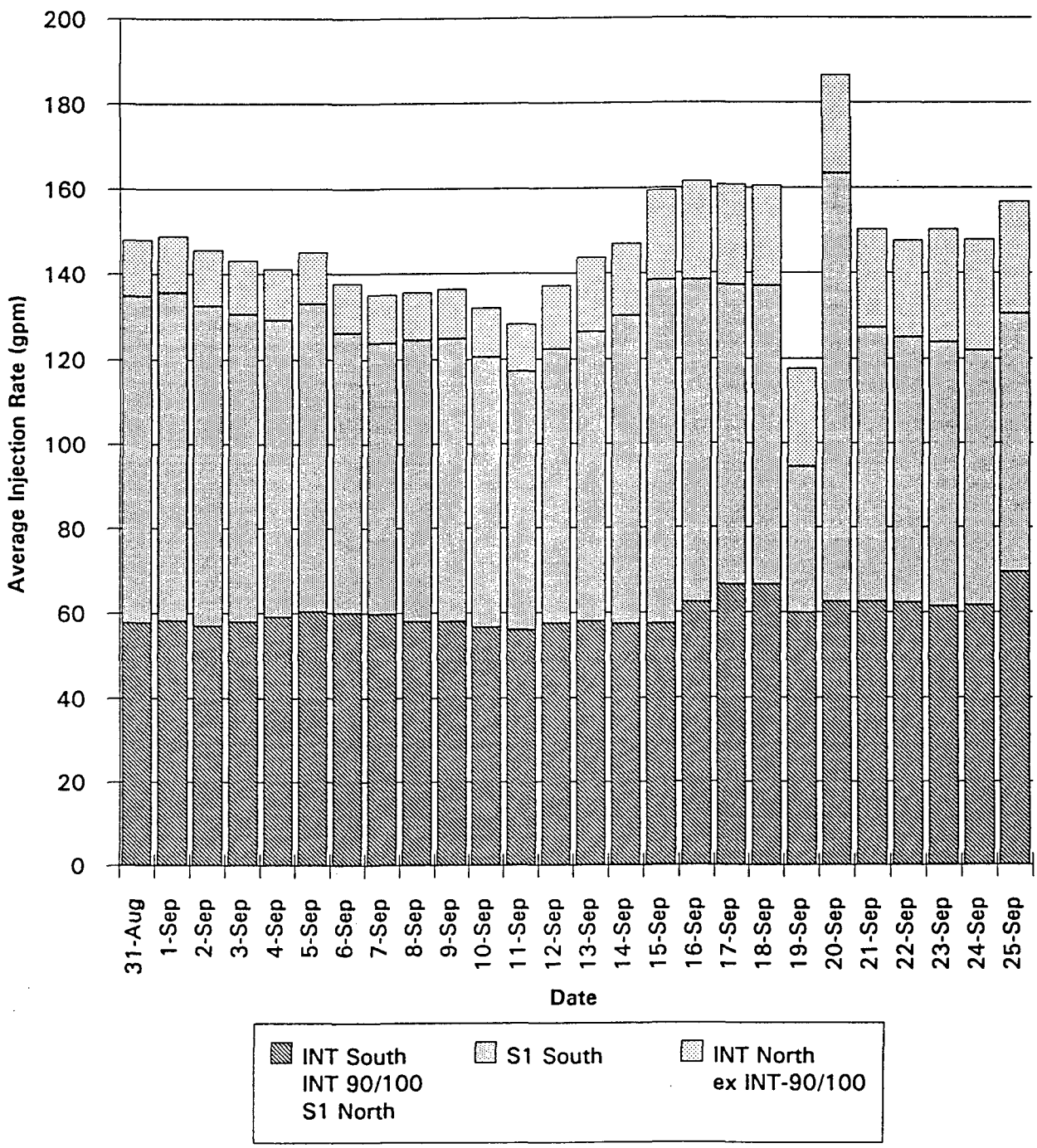


Figure 4-2

Groundwater Injection Rate



4.3 Pending Issues

4.3.1 DNAPL Response

Following completion of the steel sheetpile cutoff wall for the INT-11 DNAPL area on August 18, permeability certification testing was performed between August 22 and September 14 (including 10 days of baseline monitoring). Testing was performed in accordance with the Work Plan included as Attachment 4B of the August 1994 Monthly Progress Report. A specific response plan to the detection of DNAPL at new production well S1-63 is being reviewed by FLTG.

4.3.2 S1 Unit Pulse Pumping

Pulse pumping continued routinely in the eastern part of the S1 plume, at wells S1-44 through -60. Sampling at S1 production wells S1-19, -24, -31, -40, -41, and -44 through -60, was combined with the September quarterly groundwater monitoring. Initial results indicate that the following wells are at or near to cleanup criteria: S1-19 (8 µg/L benzene); S1-24 (3 µg/L benzene); S1-31 (benzene not detected) and S1-41 (6 µg/L benzene). These four wells will be added to the pulse pumping program. Benzene is the only VOC exceeding criteria at all wells except S1-46; at this well, benzene was not detected, but 64 µg/L of 1,2-DCA was detected. 1,2-DCA at 3 µg/L was detected at S1-46 in October 1993, before the S1 unit pulse pumping program was started. The persistence of benzene confirms the need to continue injecting oxygenated water to the S1 unit.

4.3.3 Phreatophyte Progress

There have been no changes since last month. It is planned to add five specimens of cottonwood to the test area.

4.4 Operational Refinements

Three additional INT production wells (INT-4, INT-5, and INT-6) were converted to vacuum-enhanced pumping (VEP) on September 20. The following table indicates the increases in flow rates due to VEP at the two wells converted to VEP in August:

Well	Date converted	Average flow rate before conversion (gpm)	Average flow rate after conversion (gpm)	% increase
INT-2	8/19	0.41	0.10	see text
INT-3	8/19	0.08	0.18	125%

The apparent reduced flow rate at INT-2 after conversion is because of downtime due to sand clogging problems after installation of a 3 HP pump in INT-2 on 8/25. The results from INT-3 are similar to those from INT-1. Wells INT-2 and INT-3 were converted using one vacuum pump between two wells; wells INT-4, INT-5, and INT-6 and INT-3 were converted using one vacuum pump between three wells; there have been no operational problems with this more economical arrangement and all wells are operating at vacuums of 28-29" Hg.

A plan to enhance remediation rates in recalcitrant areas of the INT unit, through sand fracturing the formation to increase its permeability, is being reviewed by FLTG.

4.5 Data Summary and Discussion

4.5.1 Groundwater Production and Injection

Groundwater production and injection rates continued above target.

4.5.2 Groundwater Levels and Flow Directions

Water level readings for the S1 and INT units were measured on September 2. Regional groundwater elevation contours for the S1 and INT units in the groundwater remediation area are presented in Figures 4-3 and 4-4. The current extent of contaminated groundwater is contained within the S1 and INT extraction system capture zones.

4.5.3 TOC in shallow groundwater

Samples were collected from 105 out of 109 production wells on September 1 for on-site TOC analysis. In addition, samples collected from selected monitoring wells as part of the September 1994 quarterly groundwater monitoring program were analyzed for TOC on site. Summaries of TOC concentrations at production wells from the start of remediation to date for each unit are presented in Tables 4-6 and 4-7. TOC contour maps are presented in Figures 4-5 and 4-6. The history of daily flows, TOC concentration, and TOC input to T-101 is presented in Table 4-2. On-site TOC analyses (used to generate Tables 4-2, 4-6, and 4-7) measure non-purgeable organic carbon.

The increase in TOC at well S1-33, similar to that seen at well S1-38 in February 1994, suggests that some "bounceback" may have occurred since this well was turned off on May 9, 1994. This will be evaluated by further sampling for TOC, and for VOCs if elevated TOC levels continue.

Table 4-6

HISTORY OF TOC CONCENTRATIONS
AT S1 PRODUCTION WELLS

Well ID	Baseline Nov-Dec 91 (ppm)	Maximum Feb-Dec 92 (ppm)	Maximum 1993 (ppm)	Average 1993 (ppm)	Minimum 1993 (ppm)	Jan 1994 (ppm)	Feb 1994 (ppm)	Mar 1994 (ppm)	Apr 1994 (ppm)	May 1994 (ppm)	June 1994 (ppm)	July 1994 (ppm)	Aug 1994 (ppm)	Sep 1994 (ppm)
S1-1	290	475	910	634	390	1,025	1,150	1,317	941	971	1,360	970	850	1,133
S1-2	190	796	1,204	832	460	1,037	909	1,510	982	1,120	1,139	1,100	1,130	1,251
S1-3	370	1,071	1,610	862	384	1,090	1,120	1,037	793	783	755	760	670	566
S1-4	47	866	1,044	786	560	848	1,300	1,025	676	669	668	420	552	620
S1-5	51	646	950	714	548	1,079	624	1,151	655	583	473	NS	NS	NS
S1-6	51	800	1,084	816	482	1,202	1,340	1,315	832	878	892	920	860	928
S1-7	200	787	1,084	879	710	NS	1,290	1,327	857	843	786	780	800	660
S1-8	64	927	1,072	769	465	1,118	1,290	1,516	921	931	1,110	880	800	935
S1-9	77	506	1,530	830	225	1,809	2,020	2,085	1,500	337	1,589	1,420	1,750	567
S1-10	46	214	2,105	1,381	147	2,251	2,610	2,540	1,716	1,980	1,800	1,810	1,770	567
S1-11	120	281	1,848	1,193	270	2,004	2,210	NS	1,500	1,609	1,751	1,810	1,639	2,510
S1-12	140	1,002	2,260	1,200	585	2,313	2,390	2,129	1,780	2,056	1,445	2,410	2,210	2,355
S1-13	520	894	760	598	404	771	930	990	698	836	722	850	790	1,077
S1-14	590	1,730	2,304	1,214	626	1,502	1,077	1,616	1,350	1,293	1,443	1,400	1,550	1,440
S1-15	5,300	4,910	3,696	2,374	336	3,373	2,756	2,778	3,030	2,484	2,280	3,490	2,080	2,583
S1-16	8,900	8,900	3,122	1,651	180	NS	2,056	2,732	2,256	NS	718	NS	NS	NS
S1-17	6,800	5,550	1,106	750	405	627	388	344	314	266	180	230	102	141
S1-18	2,200	2,043	196	112	52	90	101	44	86	39	34	36	34	49
S1-19	20	914	220	110	53	26	37	33	60	25	28	28	25	39
S1-20	120	1,360	192	126	60	25	95	141	57	68	50	47	68	60
S1-21	65	418	1,020	134	23	113	48	17	29	18	8	19	19	42
S1-22	290	1,080	1,010	123	8	12	6	4	28	14	19	16	44	64
S1-23	350	234	1,315	137	7	24	14	27	29	13	21	NS	NS	29
S1-24	250	240	200	52	16	25	16	16	39	16	18	19	19	42
S1-25	550	660	91	35	11	26	16	16	28	14	15	15	15	33
S1-26	540	575	84	34	14	25	25	22	39	15	18	17	17	49
S1-27	220	219	400	119	52	51	62	60	52	45	42	41	35	88
S1-28	370	520	380	64	11	275	29	12	23	14	15	17	15	21
S1-29	670	496	182	47	16	50	62	23	28	19	20	23	21	33
S1-30	370	711	604	113	27	51	50	78	38	28	31	32	26	86
S1-31	14	712	70	34	15	0	57	29	60	15	17	20	17	29
S1-32	18	347	910	185	30	100	132	85	82	48	49	46	45	73
S1-33	10	30	55	30	12	101	99	16	25	NS	NS	NS	15	567
S1-34	11	50	94	50	24	79	90	75	24	NS	13	17	16	18
S1-35	24	154	95	68	22	25	43	45	64	44	43	19	86	37
S1-36	200	162	106	56	10	60	49	44	45	NS	27	30	43	39
S1-37	13	71	180	44	12	50	52	55	57	NS	9	23	35	36
S1-38	59	73	52	21	1	NS	1,540	6	17	NS	NS	NS	24	22
S1-39	290	414	96	35	17	15	25	22	21	14	11	14	17	17
S1-40	150	210	268	70	25	38	25	33	25	18	15	16	14	17
S1-41	170	116	84	31	14	1	48	12	17	12	11	11	12	16
S1-42	88	103	35	17	5	0	11	37	13	NS	NS	NS	21	22
S1-43	4	36	50	24	6	1	21	NS	19	NS	NS	5	5	14
S1-44	280	204	45	25	9	25	19	44	33	23	21	23	21	28
S1-45	4,400	588	174	51	14	37	20	30	33	26	NS	17	28	24
S1-46	480	462	76	18	4	1	11	10	21	15	NS	34	21	24
S1-47	1,200	1,390	155	79	25	150	72	61	60	42	NS	25	46	31
S1-48	1,200	1,505	133	52	15	50	34	31	31	21	NS	35	37	22
S1-60	48	91	126	28	8	25	11	15	16	10	NS	10	26	17
S1-61	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	758	744	1,028	366
S1-62	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	125	42	26	27
S1-63	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	264	256	193	241
S1-64	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	512	102	63	66

NS = Not Sampled

Table 4-7

HISTORY OF TOC CONCENTRATIONS
AT INT PRODUCTION WELLS

Well ID	Baseline Nov-Dec 91 (ppm)	Maximum Feb-Dec 92 (ppm)	Maximum 1993 (ppm)	Average 1993 (ppm)	Minimum 1993 (ppm)	Jan 1994 (ppm)	Feb 1994 (ppm)	Mar 1994 (ppm)	Apr 1994 (ppm)	May 1994 (ppm)	June 1994 (ppm)	July 1994 (ppm)	Aug 1994 (ppm)	Sep 1994 (ppm)
INT-1	3,600	3,600	1,584	1,029	460	1,050	718	800	608	507	374	375	290	320
INT-2	1,800	1,120	900	414	215	174	230	290	301	343	339	602	288	281
INT-3	5,200	2,030	1,935	1,389	218	2,080	1,926	1,188	1,362	1,058	1,260	1,548	1,092	932
INT-4	610	928	793	526	330	587	1,300	1,300	990	992	541	594	542	430
INT-5	960	1,689	536	356	190	263	248	205	159	94	101	92	70	103
INT-6	280	973	1,140	556	90	720	451	510	312	210	200	135	180	195
INT-7	100	245	1,100	308	24	99	74	99	104	117	140	147	129	101
INT-8	75	666	196	90	24	112	103	84	87	62	60	56	53	64
INT-9	800	1,413	358	178	101	188	174	142	105	78	77	68	69	70
INT-10	1,900	1,328	186	109	57	100	93	112	96	65	62	NS	52	82
INT-11	590	1,816	171	117	80	175	186	NS	85	11	44	NS	NS	113
INT-12	3,300	1,820	1,255	399	141	364	239	106	123	66	105	65	48	74
INT-13	590	924	251	122	40	99	67	63	50	47	89	50	28	50
INT-14	24	1,026	492	266	58	226	154	112	162	62	NS	61	84	119
INT-15	19	1,760	38	20	9	12	34	20	19	14	19	13	30	47
INT-16	2,000	2,230	147	28	6	13	12	15	13	9	11	7	10	68
INT-17	7	252	184	81	39	152	25	13	15	12	NS	9	8	19
INT-18	4	129	270	183	139	225	230	162	137	76	73	64	51	57
INT-19	1,400	1,800	332	158	52	112	76	55	55	43	36	NS	NS	38
INT-20	3,500	3,742	3,141	2,123	901	2,147	1,960	2,525	1,844	2,112	1,922	1,930	1,810	1,182
INT-21	29	301	325	260	130	362	327	240	217	214	214	356	204	190
INT-22	8	68	76	45	18	43	58	55	32	41	44	85	101	95
INT-23	16	74	112	73	43	48	53	40	32	26	50	241	153	112
INT-24	240	434	472	293	38	202	174	136	111	85	89	95	84	84
INT-25	36	376	272	169	58	75	60	65	62	32	24	30	25	29
INT-26	120	970	837	430	143	203	173	152	131	113	38	111	108	122
INT-27	180	324	268	196	107	75	109	116	104	82	85	NS	83	79
INT-28	630	648	288	200	57	187	80	48	51	53	34	38	32	37
INT-29	1,100	1,120	450	245	74	162	130	104	58	78	65	83	59	76
INT-30	1,400	606	294	129	43	112	60	32	28	22	32	26	31	45
INT-31	70	540	120	62	29	12	67	52	41	32	25	30	30	82
INT-32	880	470	208	119	48	124	26	16	29	20	24	23	25	22
INT-33	120	1,710	1,620	910	25	1,374	1,006	255	109	61	47	38	29	20
INT-55	NS	NS	53	53	53	235	113	115	76	147	98	141	109	122
INT-56	NS	NS	668	668	668	901	824	925	153	515	435	350	314	297
INT-57	NS	NS	28	28	28	12	29	40	24	58	61	74	40	66
INT-58	NS	NS	102	102	102	10	94	76	67	54	46	44	45	34
INT-59	NS	NS	121	121	121	100	104	115	81	50	77	45	112	79
INT-60	NS	NS	172	172	172	201	169	195	151	124	118	114	111	110
INT-61	NS	NS	56	56	56	79	80	95	54	59	48	43	38	39
INT-62	NS	NS	52	52	52	75	197	100	65	36	38	30	56	35
INT-65	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	65	116	61	66
INT-66	NS	NS	114	114	114	125	132	175	161	97	113	66	83	120
INT-205	NS	NS	31	31	31	39	132	120	50	34	39	40	36	61
INT-206	NS	NS	24	24	24	218	48	44	45	38	53	75	110	107
INT-207	NS	NS	66	66	66	101	71	56	58	38	52	47	29	45
INT-208	NS	NS	27	27	27	19	53	20	24	16	38	19	20	22
INT-209	NS	NS	35	35	35	40	62	52	51	50	43	46	50	37
INT-210	NS	NS	36	36	36	42	48	24	29	25	22	72	32	27
INT-211	NS	NS	109	109	109	151	127	88	89	55	57	53	76	43
INT-212	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	36	24	22	27
INT-213	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	36	135	45	83
INT-214	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	35	68	47	46
INT-215	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	170	174	94	82
INT-216	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	22	21	24	34
INT-217	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	62	61	81	66

NS = Not Sampled

Figure 4-3

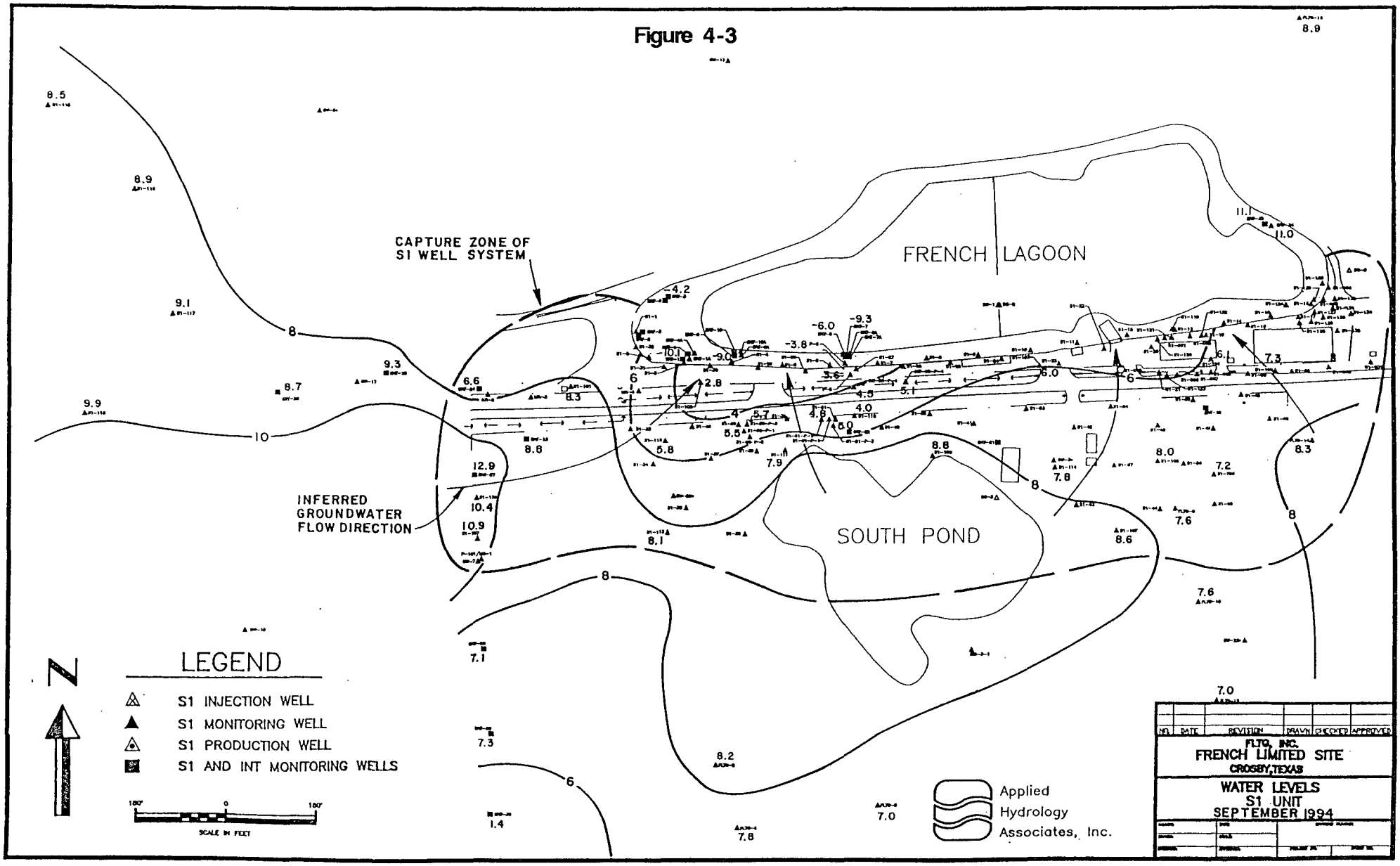

CAPTURE ZONE OF S1 WELL SYSTEM
FRENCH LAGOON
SOUTH POND
INFERRED GROUNDWATER FLOW DIRECTION
LEGEND
S1 INJECTION WELL
S1 MONITORING WELL
S1 PRODUCTION WELL
S1 AND INT MONITORING WELLS
SCALE IN FEET
Applied Hydrology Associates, Inc.
FLTG, INC.
FRENCH LIMITED SITE
CROSBY, TEXAS
WATER LEVELS
S1 UNIT
SEPTEMBER 1994

Figure 4-4

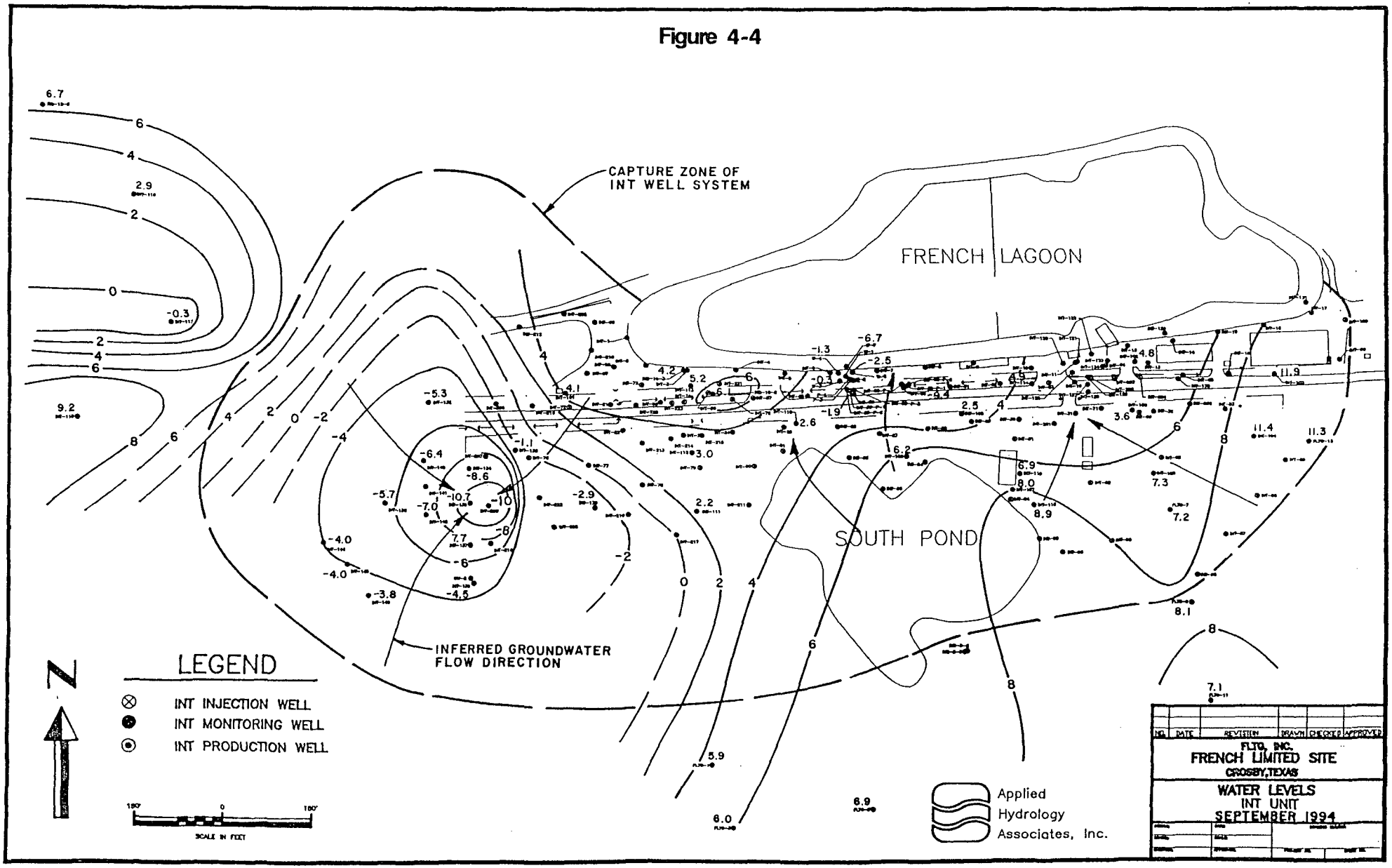

CAPTURE ZONE OF
INT WELL SYSTEM
FRENCH LAGOON
SOUTH POND
INFERRED GROUNDWATER
FLOW DIRECTION
LEGEND
INT INJECTION WELL
INT MONITORING WELL
INT PRODUCTION WELL
N
SCALE IN FEET
Applied
Hydrology
Associates, Inc.
FLTG, INC.
FRENCH LIMITED SITE
CROSBY, TEXAS
WATER LEVELS
INT UNIT
SEPTEMBER 1994

Figure 4-5

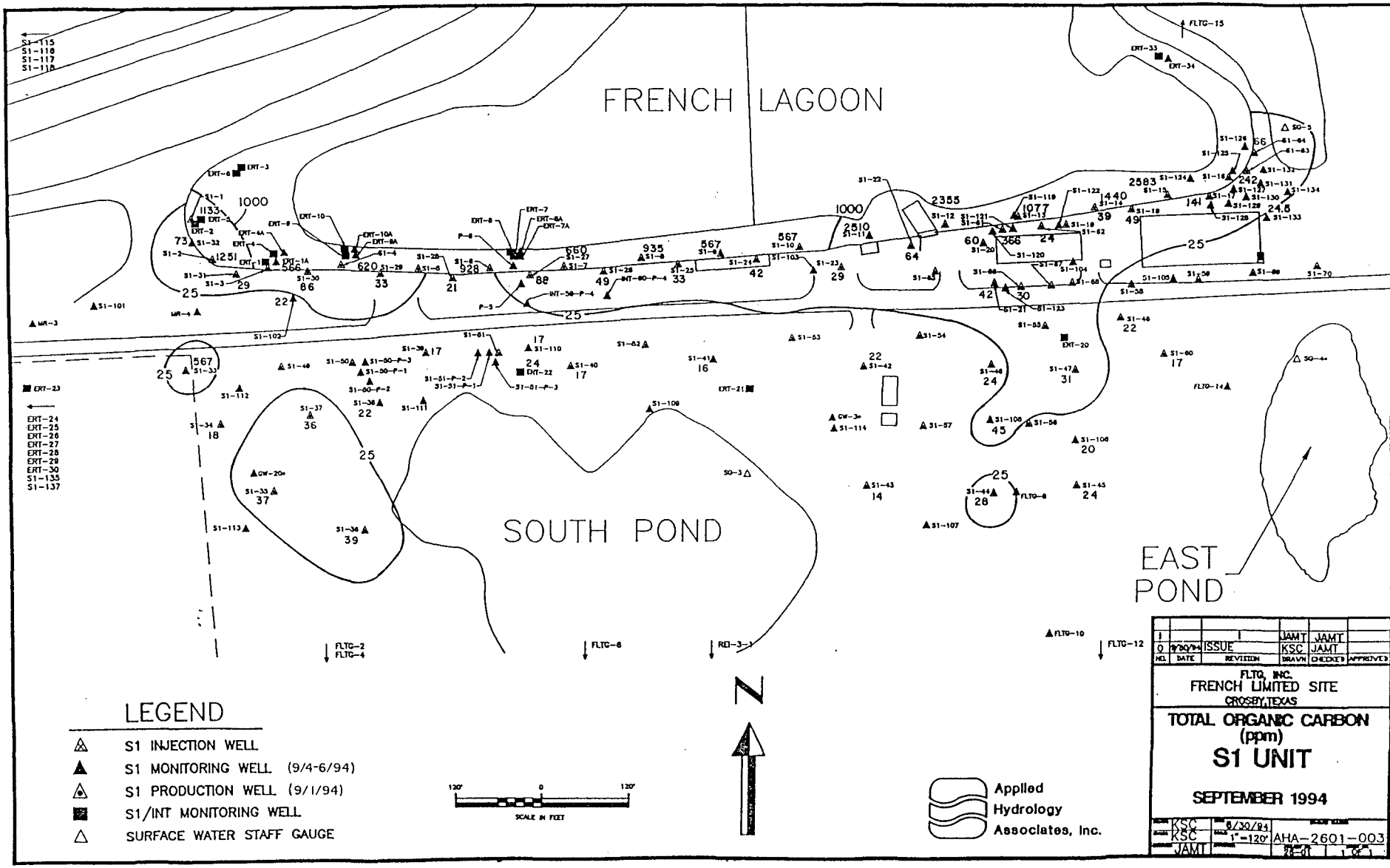
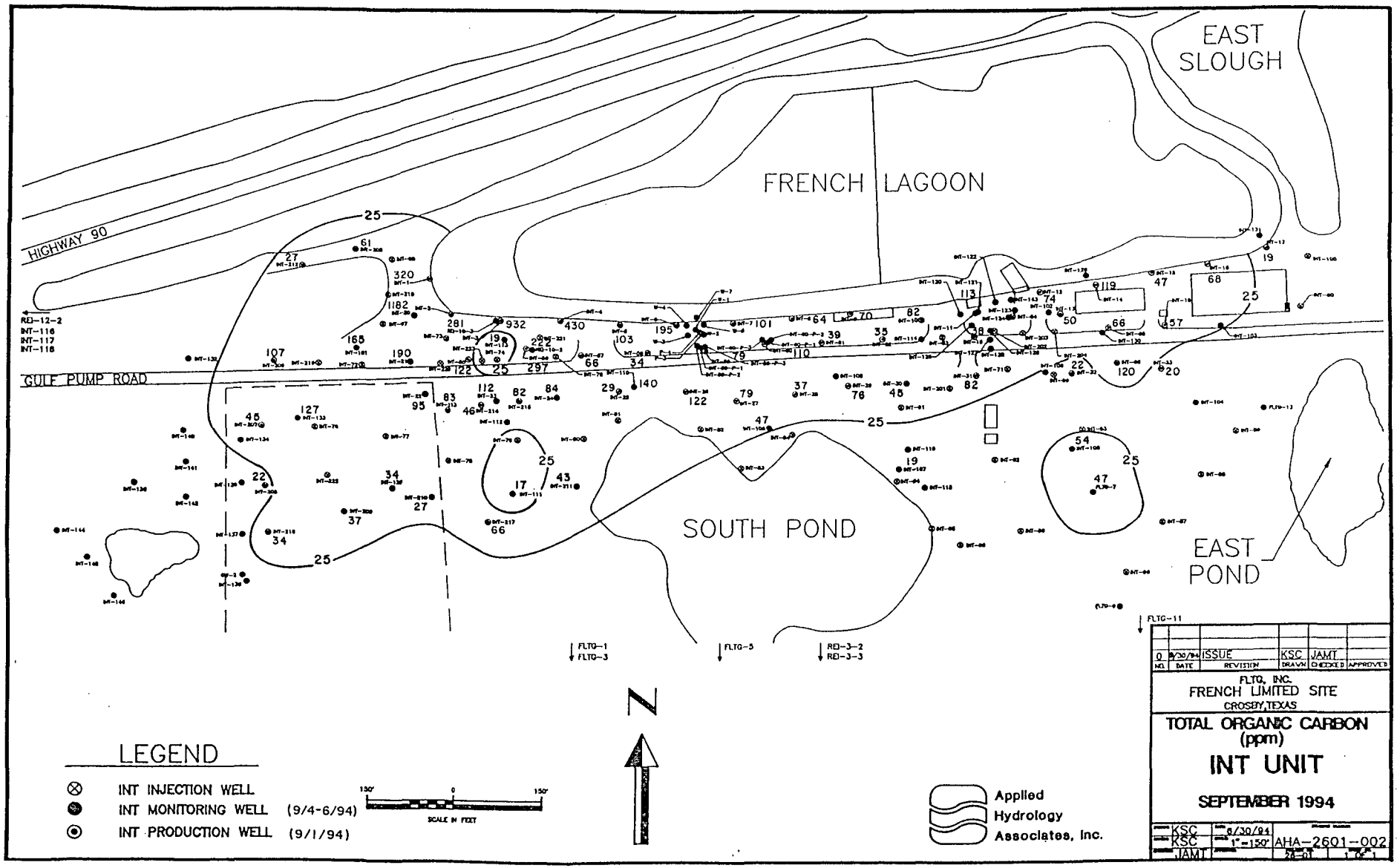

FRENCH LAGOON
SOUTH POND
EAST POND
LEGEND
S1 INJECTION WELL
S1 MONITORING WELL (9/4-6/94)
S1 PRODUCTION WELL (9/1/94)
S1/INT MONITORING WELL
SURFACE WATER STAFF GAUGE
120' 0 120'
SCALE IN FEET
N
Applied Hydrology Associates, Inc.
FLTG, INC.
FRENCH LIMITED SITE
CROSBY, TEXAS
TOTAL ORGANIC CARBON (ppm)
S1 UNIT
SEPTEMBER 1994
AHA-2601-003

Figure 4-6


EAST SLOUGH
FRENCH LAGOON
HIGHWAY 90
GULF PUMP ROAD
SOUTH POND
EAST POND
RB-12-2
INT-116
INT-117
INT-118
FLTG-1
FLTG-3
FLTG-5
RB-3-2
RB-3-3
FLTG-11
N
LEGEND
INT INJECTION WELL
INT MONITORING WELL (9/4-6/94)
INT PRODUCTION WELL (9/1/94)
150' 0 150'
SCALE IN FEET
Applied Hydrology Associates, Inc.
0 8/30/94 ISSUE KSC JAMT
NO. DATE REVISION DRAWN CHECKED APPROVED
FLTG, INC.
FRENCH LIMITED SITE
CROSBY, TEXAS
TOTAL ORGANIC CARBON (ppm)
INT UNIT
SEPTEMBER 1994
KSC 8/30/94
KSC 1"=150'
JAMT
AHA-2601-002

4.5.4 In-Situ Bioremediation

No major changes in in-situ bioremediation system operation occurred in September. The emphasis continues to be to maximize delivery of oxygen and nutrients to the INT system. Dissolved oxygen (DO) monitoring was performed at monitoring and production wells on September 1-2. In addition, DO monitoring was performed on samples collected from selected monitoring wells as part of the September 1994 quarterly groundwater monitoring program.

In September, new DO breakthrough areas developed at S1-111, INT-28, INT-29, and INT-106 (see Figures 4-7 and 4-8). At INT-209 and INT-216, post-breakthrough DO drops occurred; this has now been seen at several areas and is attributed to an increase in biological oxygen demand following DO breakthrough; the resulting rapid growth in aerobic bioactivity leads to oxygen consumption temporarily exceeding oxygen delivery rates.

To test whether the current method of measuring DO in-situ is providing representative results, selected wells were purged using a decontaminated sampling purge pump, and the results compared with previous in-situ measurements. As shown in Table 4-8, several of the wells tested in this manner showed increased DO readings. Because this suggests that the pumped samples are more representative, all DO readings for October will be performed on pumped samples.

4.5.5 Remediation Progress

Preliminary results of the September 1994 quarterly groundwater monitoring were received in September. Results are not yet available for all wells sampled. Results received (see Table 4-9) show developments at several monitoring wells. Increases in certain VOCs at some wells (e.g., benzene at INT-133, vinyl chloride at INT-139, and benzene at REI-10-2) probably reflect changes in groundwater flow patterns due to additional injection wells enhancing flushing in the INT unit.

Generally, results show relatively rapid cleanup in areas flushed by injection water, and slower progress elsewhere. Progress at S1-123 is notable, as this area was previously strongly affected by DNAPL in the S1-13 area; it has been significantly flushed by new injection well S1-66. This provides encouragement that the S1-13 and S1-16 DNAPL-related VOC plumes will continue to be remediated rapidly.

4.6 Schedule

In October: permeability certification test analysis for the INT-11 DNAPL cutoff wall will be completed; quarterly groundwater sampling results should be finalized; and the response plan for DNAPL at S1-63 will be finalized.

Table 4-8

Effect of Sampling Method on Measured DO
(values in ppm)

Purged well	August DO (in-situ)	September DO (purged)	Change*
S1-103	2.6	2.3	(0.3)
S1-104	0.0	1.8	+1.8
S1-106	0.3	0.4	+0.1
S1-108	0.2	0.6	+0.4
S1-114	0.3	0.4	+0.1
FLTG-8	0.0	0.0	0.0
INT-102	1.8	0.3	(1.5)
INT-109	0.1	0.5	+0.4
INT-110	0.1	0.8	+0.7
INT-111	0.7	2.0	+1.3
INT-114	0.8	0.4	(0.4)
INT-115	0.3	0.8	+0.5
INT-119	0.6	1.1	+0.5
INT-139	0.2	0.9	+0.7

* negative values in parentheses

Table 4-9

September 1994 Quarterly Groundwater Monitoring
Preliminary Results

Well	Last sampled	Prior status*	Present status*
INT-107	June 1994	1,2-DCA 15/5	met criteria
INT-111	June 1994	VC 20/2	VC 13/2
INT-133	December 1993	VC 199/2 Bz 14/5 1,2-DCA 76/5	VC 19/2 Bz 490/5
INT-139	June 1994	VC 160/2 Bz 7/5 1,2-DCA 15/5	VC 300/2 Bz 8/5 1,2-DCA 25/5
FLTG-7	June 1994	Bz 15/5	Bz 52/5
REI-10-2	December 1993	VC 33/2 Bz 10/5 1,2-DCA 8/5	Bz 270/5
ERT-22	December 1993	Bz 36/5	Bz 27/5
S1-102	June 1994	Bz 36/5	Bz 12/5
S1-106	June 1994	Bz 50/5	Bz 28/5
S1-123	June 1994	1,2-DCE 700/100 Chl 3900/100 1,2-DCA 2400/5 CTC 410/5 TCE 190/5 PCE 620/5	met criteria

* VOC concentrations are expressed in µg/L; second figure is cleanup criterion.

Figure 4-7

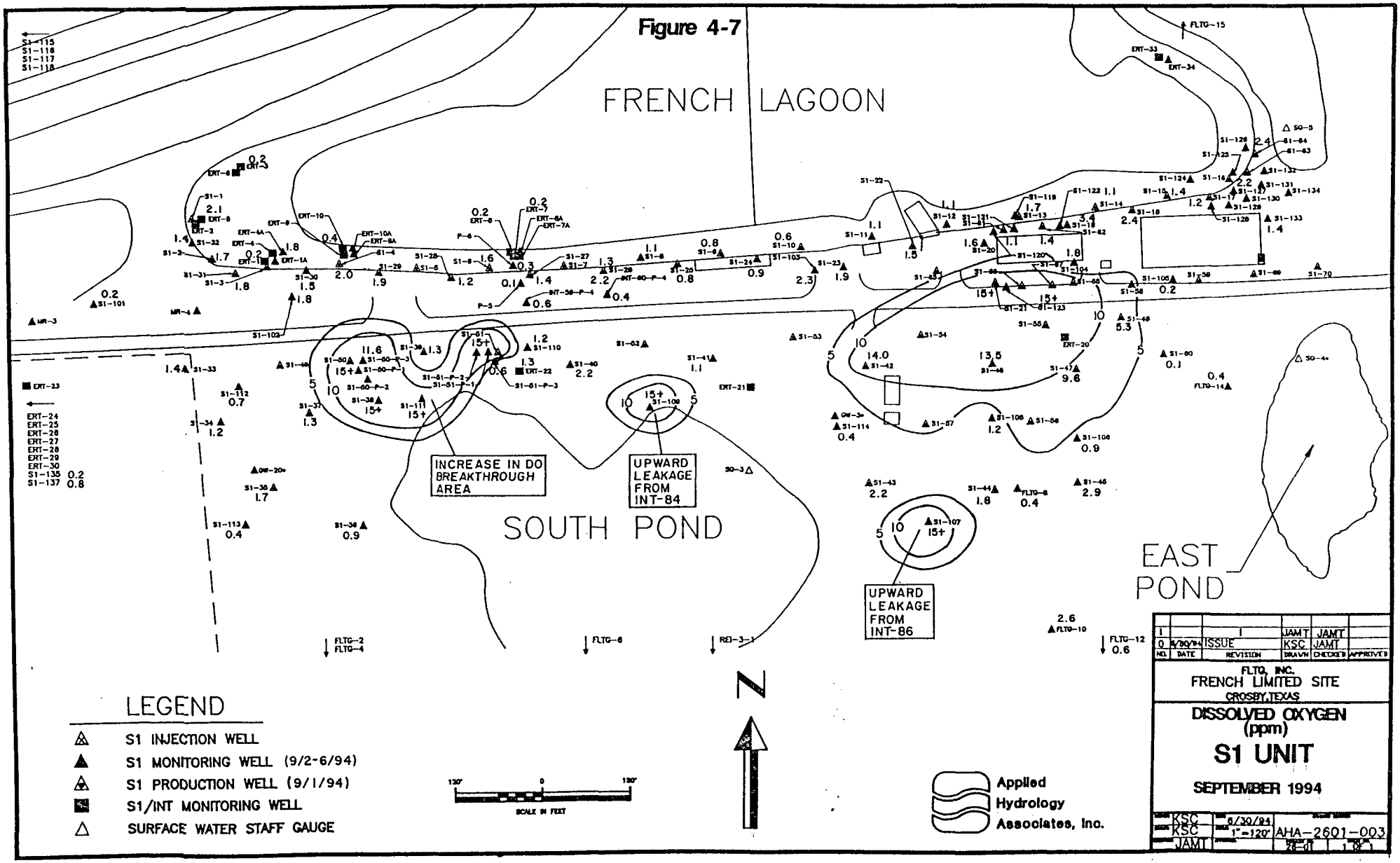
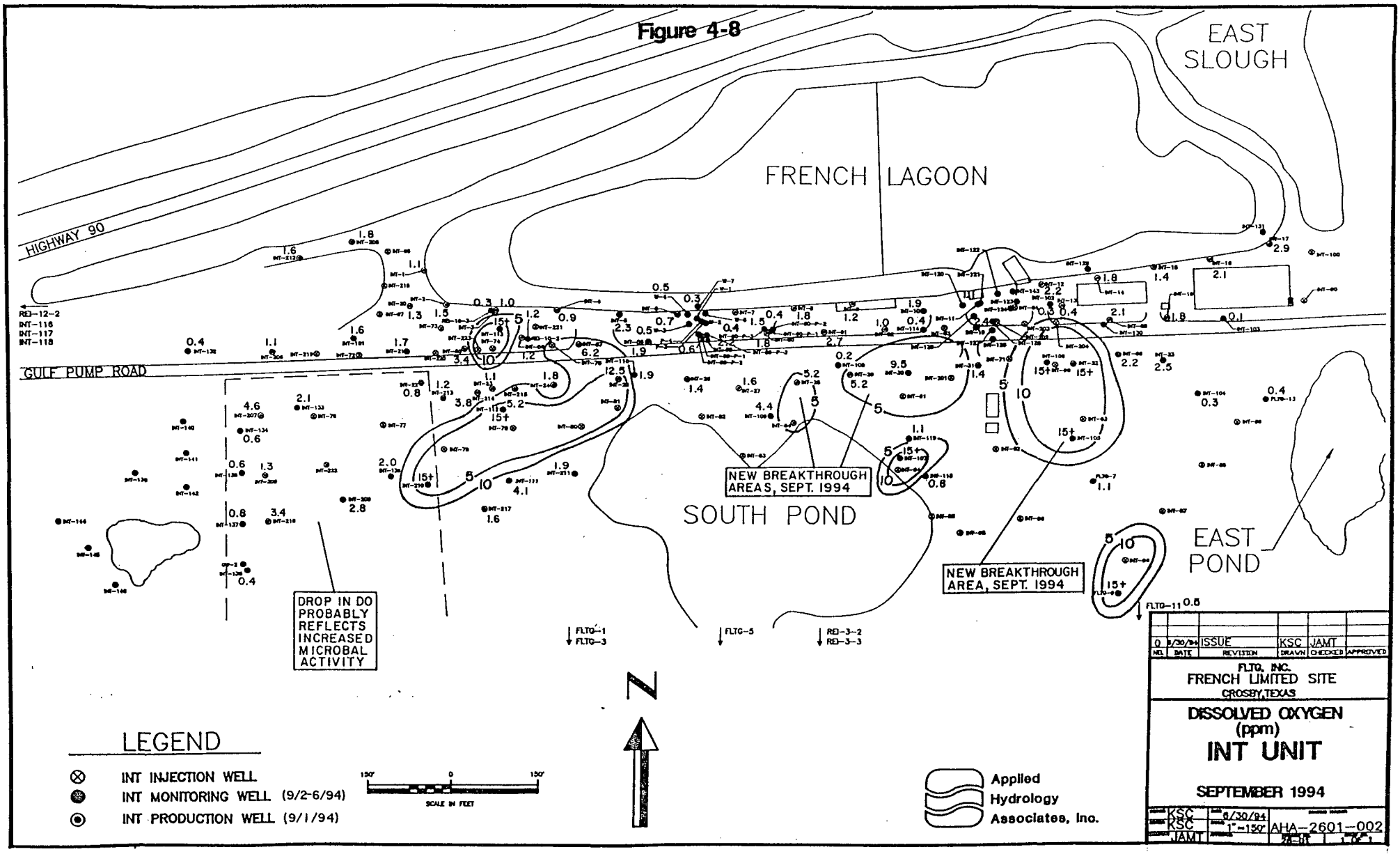

FRENCH LAGOON
SOUTH POND
EAST POND
INCREASE IN DO BREAKTHROUGH AREA
UPWARD LEAKAGE FROM INT-84
UPWARD LEAKAGE FROM INT-86
LEGEND
S1 INJECTION WELL
S1 MONITORING WELL (9/2-6/94)
S1 PRODUCTION WELL (9/1/94)
S1/INT MONITORING WELL
SURFACE WATER STAFF GAUGE
SCALE IN FEET
N
Applied Hydrology Associates, Inc.
FLTG, INC.
FRENCH LIMITED SITE
CROSBY, TEXAS
DISSOLVED OXYGEN (ppm)
S1 UNIT
SEPTEMBER 1994
AHA-2601-003

Figure 4-8


EAST SLOUGH
FRENCH LAGOON
HIGHWAY 90
GULF PUMP ROAD
RED-12-2
INT-116
INT-117
INT-118
NEW BREAKTHROUGH AREAS, SEPT. 1994
SOUTH POND
NEW BREAKTHROUGH AREA, SEPT. 1994
EAST POND
DROP IN DO PROBABLY REFLECTS INCREASED MICROBAL ACTIVITY
FLTG-1
FLTG-3
FLTG-5
RED-3-2
RED-3-3
FLTG-11
LEGEND
INT INJECTION WELL
INT MONITORING WELL (9/2-6/94)
INT PRODUCTION WELL (9/1/94)
150' 0 150'
SCALE IN FEET
N
Applied Hydrology Associates, Inc.
0 9/30/94 ISSUE KSC JAMT
NO. DATE REVISION DRAWN CHECKED APPROVED
FLTG, INC.
FRENCH LIMITED SITE
CROSBY, TEXAS
DISSOLVED OXYGEN (ppm)
INT UNIT
SEPTEMBER 1994
KSC KSC JAMT
9/30/94
1"=150'
AHA-2601-002

5.0 GROUNDWATER TREATMENT PLANT

5.1 Summary of Activities

The only issue to report for Operations this month is an excursion of the treated water discharge criteria.

On September 19th, total suspended solids was reported as 46 mg/L. Operators logs for that day reported that the composite sampler shut down during one of its cycles. The LED was reading "Replace Pump Tubing" which automatically comes up after 5000 cycles. The tubing was replaced and sampling was resumed to complete the cycle.

In retrospect, the manual override should have been implemented to complete the cycle so that purging of the new tubing did not take place in mid cycle. Storage dust accumulation and protective coating on the tubing accounted for this high TSS and was not a true evaluation of the waste stream.

Sampling SOP has added these instructions to prevent a repeat error.

There have been no other issues or major repairs in the GWT in September.

Total flows for September:

Water discharged to the San Jacinto River - 8,925,413 gallons

Water discharged to the Lagoon - 0

Sludge discharged to the Lagoon - 28,100 gallons

Water processed through the GWT - 6,779,900 gallons

Water discharged to the South Pond - 0

Water processed from Cell F to GWT by Rochem - 2,957,600 gallons (included in Attachment 5A)

Water blended passed Carbon Filter - 3,771,400 gallons

Water processed from Cell D to GWT plant - 20,200 gallons

Beneficial land application of Cell D water: metered - 161,000 gallons
unmetered - approx. 150,000 gallons

5.2 Inoculum/Nutrient Addition

The following have been introduced into the bioreactors/clarifier:

Nutrients:
600 gallons Diammonium Phosphate

Microbes:
16 oz. French Limited Isolated Microbes

Coagulant:
2.0 gallons Percol 778 Cationic Polymer

5.3 Maintenance

Table 5-1 lists the preventive maintenance items performed in September.

5.4 Operating Data

Table 5-2 summarizes the laboratory analysis of the treated water discharged to the San Jacinto River.

TABLE 5-1

Preventive Maintenance

Day	Action
September 2	Completed electrical & ladder inspection
September 4	Cleaned filters in main filter
September 5	Rotated Sala pumps
September 6	R-1 and R-2 carbon canister transfer
September 7	Lubed and checked belts on blowers 1, 2, & 3
September 9	Rotated Sala pumps
September 16	Changed filters in main filter
September 16	Lubed GWT and Chemical Storage
September 20	Rotated Sala pumps
September 24	Carbon transfer GWT Plant
September 27	Lubed GWT equipment
September 28	Changed filters in main filter

TABLE 5-2
Treated Water Results Summary

Collected	Set No.	pH (6-9)		TSS 5 PPM		TOC 55 PPM		O&G 15 PPM		Benzene 150 PPB		Chlor HC's 500 PPB		Total PCBs 0.65 PPB		Napthalene 300 PPB	
		Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg
13-Jun-94	M03A0244	7.64		7.		40.1		2.5		6.		602.		.16		5.	
16-Jun-94	M03A0245	7.54		6.		20.9		2.5		2.5		440.		.16		5.	
20-Jun-94	M03A0246	7.44		1.		36.7		2.5		6.		287.		.16		5.	
23-Jun-94	M03A0247	7.38		3.		37.9		2.5		6.		301.		.16		5.	
27-Jun-94	M03A0248	7.36		5.		43.6		2.5		6.		401.		.16		5.	
30-Jun-94	M03A0249	7.43		4.		29.		2.5		2.5		108.		.16		5.	
4-Jul-94	M03A0250	7.79		9.		21.4		2.5		6.		201.		.16		5.	
7-Jul-94	M03A0251	7.47		9.		30.1		2.5		2.5		181.		.16		5.	
11-Jul-94	M03A0252	7.44	7.5	1.	5.	26.8	31.83	2.5	2.5	2.5	4.44	236.	306	.16	.16	5.	5.
14-Jul-94	M03A0253	7.28	7.46	1.	4.33	43.3	32.19	2.5	2.5	6.	4.44	223.	264	.16	.16	5.	5.
18-Jul-94	M03A0254	7.24	7.43	3.	4.	31.9	33.41	2.5	2.5	6.	4.83	348.	254	.16	.16	5.	5.
21-Jul-94	M03A0255	7.27	7.41	1.	4.	43.6	34.18	2.5	2.5	6.	4.83	228.	247	.16	.16	5.	5.
25-Jul-94	M03A0256	7.27	7.39	7.	4.44	38.2	34.21	2.5	2.5	2.5	4.44	204.	237	.16	.16	5.	5.
28-Jul-94	M03A0257	7.31	7.39	4.	4.33	32.5	32.98	2.5	2.5	2.5	4.06	206.	215	.16	.16	5.	5.
1-Aug-94	M03A0258	7.36	7.38	8.	4.78	33.9	33.52	2.5	2.5	6.	4.44	313.	238	.16	.16	5.	5.
4-Aug-94	M03A0259	7.3	7.33	2.	4.	33.6	34.88	2.5	2.5	2.5	4.06	203.	238	.16	.16	5.	5.
8-Aug-94	M03A0260	7.25	7.3	3.	3.33	65.6	38.82	2.5	2.5	2.5	4.06	145.	234	.16	.16	5.	5.
11-Aug-94	M03A0261	7.16	7.27	2.	3.44	81.	44.84	2.5	2.5	2.5	4.06	292.	240	.16	.16	5.	5.
15-Aug-94	M03A0262	7.13	7.25	1.	3.44	76.3	48.51	2.5	2.5	6.	4.06	342.	253	.16	.16	5.	5.
18-Aug-94	M03A0263	7.25	7.26	1.	3.22	26.1	47.87	2.5	2.5	2.5	3.67	104.	226	.16	.16	5.	5.
22-Aug-94	M03A0264	7.33	7.26	1.	3.22	15.	44.69	2.5	2.5	2.5	3.28	242.	228	.16	.16	5.	5.
25-Aug-94	M03A0265	7.46	7.28	2.	2.67	34.7	44.3	2.5	2.5	2.5	3.28	102.	217	.16	.16	5.	5.
29-Aug-94	M03A0266	7.37	7.29	10.	3.33	23.5	43.3	2.5	2.5	2.5	3.28	56.	200	.16	.16	5.	5.
1-Sep-94	M03A0267	7.54	7.31	1.	2.56	23.7	42.17	2.5	2.5	2.5	2.89	44.	170	.16	.16	5.	5.
5-Sep-94	M03A0268	7.69	7.35	3.	2.67	37.2	42.57	2.5	2.5	2.5	2.89	152.	164	.16	.16	5.	5.
8-Sep-94	M03A0269	7.58	7.39	2.	2.56	37.8	39.48	2.5	2.5	2.5	2.89	52.	154	.16	.16	5.	5.
12-Sep-94	M03A0270	7.14	7.39	3.	2.67	38.7	34.78	2.5	2.5	2.5	2.89	152.	138	.16	.16	5.	5.
15-Sep-94	M03A0271	7.25	7.4	2.	2.78	38.3	30.56	2.5	2.5	2.5	2.5	680.	176	.16	.16	5.	5.
19-Sep-94	M03A0272	7.59	7.44	46.	7.78	36.2	31.68	2.5	2.5	6.	2.89	521.	222	.16	.16	5.	5.
22-Sep-94	M03A0273	7.55	7.46	5.	8.22	38.2	34.26	2.5	2.5	6.	3.28	524.	254	.16	.16	5.	5.
26-Sep-94	M03A0274	7.19	7.43	4.	8.44	37.3	34.54	2.5	2.5	2.5	3.28	523.	300	.16	.16	5.	5.
29-Sep-94	M03A0275	7.31	7.43	6.	8.	47.8	37.24	2.5	2.5	2.5	3.28	937.	398	.16	.16	5.	5.
3-Oct-94	M03A0276	7.36	7.41														
6-Oct-94	M03A0277																

Chlorinated hydrocarbons value is sum of detected concentrations of 21 volatile chlorinated hydrocarbons on target compound list.

TABLE 5-2 (Continued)
Treated Water Results Summary

Collected	Set No.	As 150 PPB		Ba 200 PPB		Cd 50 PPB		Cr 500 PPB		Cu 15 PPB		Pb 66 PPB		Mn 300 PPB		Hg 1 PPB		Ni 148 PPB		Se 20 PPB		Ag 5 PPB		Zn 162 PPB	
		Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg
13-Jun-94	M03A0244	11.		82.		.8		13.		9.		1.		19.		.1		12.		1.		3.8		14.	
16-Jun-94	M03A0245	12.		94.		1.		1.		10.		1.		21.		.1		12.		1.		3.		7.	
20-Jun-94	M03A0246	9.7		116.		1.2		.9		12.		1.		14.		.1		10.		2.		2.8		6.	
23-Jun-94	M03A0247	14.		122.		1.5		.8		11.		1.		21.		.1		7.5		1.		2.5		11.	
27-Jun-94	M03A0248	10.		121.		1.5		9.		12.5		1.		18.		.1		9.6		1.		3.6		16.	
30-Jun-94	M03A0249	13.		108.		1.5		.3		7.		1.		9.		.1		8.		1.		3.		5.	
4-Jul-94	M03A0250	16.		68.5		.2		.3		3.5		.5		9.6		.1		3.1		1.		2.6		12.	
7-Jul-94	M03A0251	14.9		104.		.3		.8		11.		1.		20.		.1		5.		1.		3.		10.	
11-Jul-94	M03A0252	10.	12.3	110.	102.8	.5	.9	.5	3.	5.	9.	1.5	1.	10.	15.7	.1	.1	4.	7.9	1.5	1.2	3.	3.	10.	10.1
14-Jul-94	M03A0253	18.	13.1	105.	105.4	.3	.9	.3	1.5	6.	8.7	.8	1.	7.	14.4	.1	.1	4.5	7.1	.8	1.1	1.5	2.8	17.	10.4
18-Jul-94	M03A0254	10.	12.8	60.	101.6	.5	.8	.5	1.5	4.	8.	1.5	1.	10.	13.2	.1	.1	2.	6.	1.5	1.2	2.	2.7	10.	10.8
21-Jul-94	M03A0255	10.	12.9	100.	99.8	.5	.7	.5	1.4	6.	7.3	1.5	1.1	7.	12.4	.1	.1	7.	5.6	1.5	1.1	1.	2.5	10.	11.2
25-Jul-94	M03A0256	8.	12.2	110.	98.5	.3	.6	.3	1.4	3.	6.4	.8	1.1	6.	10.7	.1	.1	6.	5.5	2.	1.3	.5	2.2	6.	10.7
28-Jul-94	M03A0257	13.	12.5	64.	92.2	.3	.5	.6	.4	15.	6.7	.8	1.	29.	12.	.1	.1	6.	5.1	2.	1.4	.5	1.9	8.	9.8
1-Aug-94	M03A0258	8.	12.	100.	91.3	.3	.3	3.	.7	141.	21.6	4.	1.4	15.	12.6	.1	.1	5.	4.7	.8	1.3	.5	1.6	106.	21.
4-Aug-94	M03A0259	14.	11.8	104.	95.2	.3	.3	.3	.7	5.	21.8	.8	1.4	7.	12.3	.1	.1	11.	5.6	.8	1.3	.5	1.4	10.	20.8
8-Aug-94	M03A0260	11.	11.3	110.	95.9	.3	.3	1.5	.8	6.	21.2	.8	1.4	7.	10.9	.1	.1	15.	6.7	2.	1.4	.5	1.1	14.	21.2
11-Aug-94	M03A0261	14.	11.8	105.	95.3	.3	.3	1.	.9	3.	21.	.8	1.3	5.	10.3	.1	.1	10.	7.4	5.	1.8	.5	.8	12.	21.4
15-Aug-94	M03A0262	14.	11.3	94.	94.1	.3	.3	.3	.9	2.	20.6	.8	1.3	4.	10.	.1	.1	7.	7.7	.8	1.8	.5	.7	9.	20.6
18-Aug-94	M03A0263	14.	11.8	89.	97.3	.3	.3	1.	.9	5.	20.7	.8	1.2	3.	9.2	.1	.1	14.	9.	.8	1.7	.5	.6	12.	20.8
22-Aug-94	M03A0264	9.	11.7	70.	94.	.3	.3	.3	.9	10.5	21.2	.8	1.1	3.	8.8	.1	.1	2.	8.4	.8	1.6	.5	.5	5.	20.2
25-Aug-94	M03A0265	10.	11.9	88.	91.6	.3	.3	.3	.9	1.	20.9	.8	1.1	2.	8.3	.1	.1	3.	8.1	.8	1.5	.5	.5	3.	19.9
29-Aug-94	M03A0266	20.	12.7	80.	93.3	.3	.3	3.	1.2	5.	19.8	.8	1.1	.5	5.2	.1	.1	10.	8.6	1.5	1.4	.5	.5	12.	20.3
1-Sep-94	M03A0267	14.	13.3	70.	90.	.3	.3	1.	.9	2.	4.4	.8	.8	3.	3.8	.1	.1	7.	8.8	.8	1.4	.5	.5	5.	9.1
5-Sep-94	M03A0268	17.	13.7	62.	85.3	1.3	.4	2.5	1.2	1.3	4.	1.3	.8	5.	3.6	.1	.1	10.	8.7	1.3	1.5	2.5	.7	8.	8.9
8-Sep-94	M03A0269	10.	13.6	50.	78.7	1.3	.5	2.5	1.3	1.3	3.4	1.3	.9	4.	3.3	.1	.1	5.	7.6	1.3	1.4	2.5	.9	3.8	7.8
12-Sep-94	M03A0270	12.	13.3	45.	72.	1.3	.6	2.5	1.5	4.	3.6	1.3	.9	3.	3.1	.1	.1	2.5	6.7	1.3	1.	2.5	1.2	10.	7.5
15-Sep-94	M03A0271	13.	13.2	50.	67.1	1.3	.7	2.5	1.7	3.	3.7	1.3	1.	1.3	2.8	.1	.1	7.	6.7	1.3	1.1	2.5	1.4	24.	9.2
19-Sep-94	M03A0272	10.	12.8	54.	63.2	1.3	.8	2.5	1.9	4.	3.6	1.3	1.	11.	3.6	.1	.1	5.	5.7	1.3	1.1	2.5	1.6	10.	9.
22-Sep-94	M03A0273	12.	13.1	64.	62.6	1.3	.9	2.5	2.1	4.	2.8	1.3	1.1	22.	5.8	.1	.1	5.	6.1	1.3	1.2	2.5	1.8	11.	9.6
26-Sep-94	M03A0274	14.	13.6	61.	59.6	1.3	1.	2.5	2.4	1.3	2.9	1.3	1.1	4.	6.	.1	.1	5.	6.3	1.3	1.2	1.3	1.9	3.8	9.7
29-Sep-94	M03A0275	15.	13.	78.	59.3	1.3	1.1	2.5	2.3	1.3	2.5	1.3	1.2	5.	6.5	.1	.1	5.	5.7	1.3	1.2	2.5	2.1	10.	9.5
3-Oct-94	M03A0276																								
6-Oct-94	M03A0277																								

Metals values in PPB.

ATTACHMENT 5A

Rochem Environmental, Inc. - Progress Report

ROCHEM
ENVIRONMENTAL, INC.

610 N. Milby Street
Houston, Texas 77003

Phone: (713) 224-7626
Fax: (713) 224-7627

October 3, 1994

Mr. Mark Collins
French Limited Project
15010 F.M. 2100, Suite 200
Crosby, Texas 77532

Dear Mark:

We are submitting our report for the month September.

During the month, we treated 2,957,600 gallons of water. On contract we have 39,292,200 gallons to date.

Operations continue to produce excellent quality discharge.

Sincerely,

Kenneth A. Miller
President

/plz

6.0 AMBIENT AIR MANAGEMENT

Ambient air quality management continued on an "as-needed" basis to protect the environment, human health, and site workers.

6.1 Summary of Activities

Collected and analyzed three time-integrated personnel exposure samples; the measured levels of volatile organic compounds were well below the action levels.

Sampled the ambient air in all work areas several times per shift and on a random "spot-check" basis; there were no levels of volatile organic compounds which required response action. Sampled ambient air in special work areas where burning and/or welding was planned. Sampled ambient air continuously in areas where exposure could occur.

6.2 Problems and Response Action

Problem	Response Action
Calibrate portable vapor meters.	Train operators to calibrate; refurbish all meters.
Sampling "hot" wells.	Require respirator use when sampling "hot" wells.
Ambient air quality in all work areas.	Check all work areas with portable meter several times per day.
H_2S levels in some well vaults.	Vent vault and purge with air before working in the vaults.

6.3 Problems Resolved

None.

6.4 On-going Events/Activities

Measure ambient air quality in all work areas several times per day.

Conduct time-integrated sampling in all major work areas.

Require respiratory protection when sampling "hot" wells.

Conduct necessary air sampling and analyses to issue "burn" permits.

Closely monitor ambient air quality in the vicinity of new projects/activities.

Conduct respirator fit tests on all employees.

7.0 QUALITY ASSURANCE/QUALITY CONTROL

7.1 Summary of Activities

7.1.1 Sampling

One set of personal air monitoring samples were collected in September. The following is a summary of current routine and special air matrix code sample specifics:

MATRIX CODE	SAMPLE SPECIFICS
M01D	TF at three locations

TF = Tenax® front tube

Table 7-1 is a summary of the air, soil and water samples collected for the month of September. Table 7-2 is a summary of Scheduled Sampling Events for the month of September.

7.1.2 Data Validation Activities Summary

7.1.2.1 Treated Water Samples

Data validation has been completed for sample sets M03A0262, M03A0263, M03A0264, M03A0265, M03A0266, M03A0267, M03A0268 and M03A0269. These samples were collected between August 15, 1994 and September 8, 1994. QC failures are summarized in Table 7-3. Completeness values are summarized in Tables 7-4 through 7-8.

7.1.2.2 Groundwater Samples

Level I manual data validation was performed on all groundwater sample sets submitted this period. Data has been received, but not validated for the 3rd quarter 1994 groundwater monitoring event. QC results for these samples will be reported in the October monthly report.

7.1.2.3 Other Samples

All other special sample sets were validated manually this period.

7.2 Data Validation QC Summary and Discussion

7.2.1 Level I and Level II QC Philosophy

The Quality Assurance Project Plan (QAPP) defines data validity in terms of procedural requirements which must be followed for data comparability, and numerical data quality objectives which must be met to assure precision and accuracy of the results. Precision, accuracy and completeness are the numerical Data Quality Objectives (DQOs) established for the French Project by the QAPP. The intent of the data validation process is to verify that the documentation and quality control data provided by the laboratory properly substantiate the required data quality.

For purposes of data validation procedures, the QAPP defines two QC levels: Level I and Level II. Level I data validation is specified for process control and progress monitoring sample data validation and Level II data validation is specified for remediation verification sample results and treated water discharge sample results.

7.2.2 QA Issues

7.2.2.1 Treated water discharge samples - Semivolatile QC Failures

All semi-volatile matrix spike / matrix spike duplicate analyses this month had percent recovery failures (see Table 7-3). An examination of laboratory control sample recovery data and the chromatograms for these samples confirmed matrix effect. The chromatograms had many extraneous peaks. Several tentatively identified compounds (TICs) were reported, none of which were identifiable. All TICs were reported as "UNKNOWN".

TABLE 7-1

Samples Collected - September, 1994

Sample No.	Description	Location	Date Samp'd	Lab Rec'd	Data Rec'd	Lab
M01D004601	Personal air monitoring	GWTP Oper.	9/14	9/15	Y	A
M01D004602	Personal air monitoring	Rochem Oper.	9/14	9/15	Y	A
M01D004603	Personal air monitoring	Well Oper.	9/14	9/15	Y	A
M03A026701	Treated water discharge	CF Out	9/01	9/02	Y	A
M03A026801	Treated water discharge	CF Out	9/05	9/06	Y	A
M03A026901	Treated water discharge	CF Out	9/08	9/09	Y	A
M03A027001	Treated water discharge	CF Out	9/12	9/13	N	A
M03A027101	Treated water discharge	CF Out	9/15	9/16	N	A
M03A027201	Treated water discharge	CF Out	9/19	9/20	N	A
M03A027301	Treated water discharge	CF Out	9/22	9/23	N	A
M03A027401	Treated water discharge	CF Out	9/26	9/27	N	A
M03A027501	Treated water discharge	CF Out	9/29	9/30	N	A
M04A001701	3rd Qtr '94 GW monitoring	INT-111	9/03	9/06	Y	A
M04A001702	3rd Qtr '94 GW monitoring	INT-139	9/03	9/06	Y	A
M04A001703	3rd Qtr '94 GW monitoring	S1-102	9/03	9/06	Y	A
M04A001704	3rd Qtr '94 GW monitoring	S1-044	9/03	9/06	Y	A
M04A001705	3rd Qtr '94 GW monitoring	S1-045	9/03	9/06	Y	A

TABLE 7-1

Samples Collected - September, 1994

Sample No.	Description	Location	Date Samp'd	Lab Rec'd	Data Rec'd	Lab
M04A001706	3rd Qtr '94 GW monitoring	S1-024	9/03	9/06	Y	A
M04A001801	3rd Qtr '94 GW monitoring	REI-10-2	9/04	9/06	Y	A
M04A001802	3rd Qtr '94 GW monitoring	INT-133	9/04	9/06	Y	A
M04A001803	3rd Qtr '94 GW monitoring	S1-048	9/04	9/06	Y	A
M04A001804	3rd Qtr '94 GW monitoring	INT-107	9/04	9/06	Y	A
M04A001805	3rd Qtr '94 GW monitoring	S1-123	9/04	9/06	Y	A
M04A001806	3rd Qtr '94 GW monitoring	ERT-022	9/04	9/06	Y	A
M04A001901	3rd Qtr '94 GW monitoring	S1-060	9/04	9/06	Y	A
M04A001902	3rd Qtr '94 GW monitoring	S1-041	9/04	9/06	Y	A
M04A001903	3rd Qtr '94 GW monitoring	S1-046	9/04	9/06	Y	A
M04A001904	3rd Qtr '94 GW monitoring	S1-047	9/04	9/06	Y	A
M04A001905	3rd Qtr '94 GW monitoring	S1-106	9/04	9/06	Y	A
M04A001906	3rd Qtr '94 GW monitoring	FLTG-007	9/04	9/06	Y	A
M04A001907	3rd Qtr '94 GW monitoring	S1-019	9/04	9/06	Y	A
M04A001908	3rd Qtr '94 GW monitoring	S1-031	9/04	9/06	Y	A
M04A001909	3rd Qtr '94 GW monitoring	S1-040	9/04	9/06	Y	A
M04B001301	3rd Qtr '94 GW monitoring	INT-105	9/05	9/06	Y	A
M04B001302	3rd Qtr '94 GW monitoring	S1-133	9/05	9/06	Y	A
M04B001303	3rd Qtr '94 GW monitoring	INT-113	9/05	9/06	Y	A
M04B001304	3rd Qtr '94 GW monitoring	INT-101	9/05	9/06	Y	A

TABLE 7-1

Samples Collected - September, 1994

Sample No.	Description	Location	Date Samp'd	Lab Rec'd	Data Rec'd	Lab
M04B001305	3rd Qtr '94 GW monitoring	INT-109	9/05	9/06	Y	A
M04B001306	3rd Qtr '94 GW monitoring	S1-110	9/05	9/06	Y	A
M04B001307	3rd Qtr '94 GW monitoring	S1-108	9/05	9/06	Y	A
M04B001308	3rd Qtr '94 GW monitoring	INT-003	9/05	9/06	Y	A
M04B001401	3rd Qtr '94 GW monitoring	INT-110	9/06	9/07	Y	A
M04C001301	3rd Qtr '94 GW monitoring	INT-111	9/05	9/07	Y	A
M04C001302	3rd Qtr '94 GW monitoring	INT-139	9/05	9/07	Y	A
M04C001303	3rd Qtr '94 GW monitoring	S1-102	9/05	9/07	Y	A
M04C001304	3rd Qtr '94 GW monitoring	S1-044	9/05	9/07	Y	A
M04C001305	3rd Qtr '94 GW monitoring	S1-045	9/05	9/07	Y	A
M04C001306	3rd Qtr '94 GW monitoring	S1-024	9/05	9/07	Y	A
M04C001307	3rd Qtr '94 GW monitoring	REI-10-2	9/05	9/07	Y	A
M04C001308	3rd Qtr '94 GW monitoring	INT-133	9/05	9/07	Y	A
M04C001309	3rd Qtr '94 GW monitoring	ERT-022	9/05	9/07	Y	A
M04C001310	3rd Qtr '94 GW monitoring	INT-107	9/05	9/07	Y	A
M04C001311	3rd Qtr '94 GW monitoring	S1-123	9/05	9/07	Y	A
M04C001401	3rd Qtr '94 GW monitoring	S1-048	9/05	9/07	Y	A
M04C001402	3rd Qtr '94 GW monitoring	S1-060	9/05	9/07	Y	A
M04C001403	3rd Qtr '94 GW monitoring	S1-041	9/05	9/07	Y	A
M04C001404	3rd Qtr '94 GW monitoring	S1-046	9/05	9/07	Y	A

TABLE 7-1 (Continued)

Samples Collected - September, 1994

Sample No.	Description	Location	Date Samp'd	Lab Rec'd	Data Rec'd	Lab
M04C001405	3rd Qtr '94 GW monitoring	S1-047	9/05	9/07	Y	A
M04C001406	3rd Qtr '94 GW monitoring	S1-106	9/05	9/07	Y	A
M04C001407	3rd Qtr '94 GW monitoring	FLTG-007	9/05	9/07	Y	A
M04C001408	3rd Qtr '94 GW monitoring	S1-019	9/05	9/07	Y	A
M04C001409	3rd Qtr '94 GW monitoring	S1-031	9/05	9/07	Y	A
M04C001410	3rd Qtr '94 GW monitoring	S1-040	9/05	9/07	Y	A
M06C001901	Monthly process monitoring	T-101 Eff	9/08	9/09	Y	A
M06C001902	Monthly process monitoring	T-101 Inf-1	9/08	9/09	Y	A
M06C001903	Monthly process monitoring	T-101 Inf-2	9/08	9/09	Y	A
M06C001904	Monthly process monitoring	R1	9/08	9/09	Y	A
M06C001905	Monthly process monitoring	R2	9/08	9/09	Y	A
M06C001906	Monthly process monitoring	Rochem Prod.	9/08	9/09	Y	A
M08A001801	New RD-2 potable well	New RD-2	9/27	9/27	Y	A
M08B000601	New RD-2 potable well	New RD-2	9/27	9/27	Y	N
M08C000701	Quarterly Riverdale well samples	RD-1	9/15	9/15	N	N
M08C000702	Quarterly Riverdale well samples	RD-2	9/15	9/15	N	N
M08C000703	Quarterly Riverdale well samples	RD-3	9/15	9/15	N	N
M08C000704	Quarterly Riverdale well samples	RD-4	9/15	9/15	N	N
M08C000705	Quarterly Riverdale well samples	RD-5	9/15	9/15	N	N
M08C000706	Quarterly Riverdale well samples	RD-6	9/15	9/15	N	N

TABLE 7-1 (Continued)

Samples Collected - September, 1994

Sample No.	Description	Location	Date Samp'd	Lab Rec'd	Data Rec'd	Lab
M08D000901	Quarterly Riverdale well samples	RD-1	9/15	9/15	N	A
M08D000902	Quarterly Riverdale well samples	RD-2	9/15	9/15	N	A
M08D000903	Quarterly Riverdale well samples	RD-3	9/15	9/15	N	A
M08D000904	Quarterly Riverdale well samples	RD-4	9/15	9/15	N	A
M08D000905	Quarterly Riverdale well samples	RD-5	9/15	9/15	N	A
M08D000906	Quarterly Riverdale well samples	RD-6	9/15	9/15	N	A
S12B000801	Cell F liquor monitoring	Cell F Liq	9/15	9/16	Y	A
S16D000301	R1 and R2 bio-monitoring	R1	9/02	9/02	Y	N
S16D000302	R1 and R2 bio-monitoring	R2	9/02	9/02	Y	N

TABLE 7-2

Scheduled Sampling Events
September, 1994

Date Sampled	Set Number	Description	Schedule
9/03/94	M04A0017	3rd Qtr '94 GW monitoring	Quarterly
9/04/94	M04A0018	3rd Qtr '94 GW monitoring	Quarterly
9/04/94	M04A0019	3rd Qtr '94 GW monitoring	Quarterly
9/05/94	M04B0013	3rd Qtr '94 GW monitoring	Quarterly
9/06/94	M04B0014	3rd Qtr '94 GW monitoring	Quarterly
9/05/94	M04C0013	3rd Qtr '94 GW monitoring	Quarterly
9/05/94	M04C0014	3rd Qtr '94 GW monitoring	Quarterly
9/15/94	S12B0008	Cell F monitoring	Special
9/08/94	M06C0019	Monthly process samples	Monthly
9/27/94	M08A0018	New RD-2 potable well	Special
9/27/94	M08B0006	New RD-2 potable well	Special
9/14/94	M01D0046	Personal air monitoring	Monthly
9/15/94	M08C0007	Quarterly Riverdale wells	Quarterly
9/15/94	M08D0009	Quarterly Riverdale wells	Quarterly
9/02/94	S16D0003	R1/R2 bio-monitoring	Special
9/01/94	M03A0267	Treated water discharge	Bi-weekly
9/05/94	M03A0268	Treated water discharge	Bi-weekly
9/08/94	M03A0269	Treated water discharge	Bi-weekly
9/12/94	M03A0270	Treated water discharge	Bi-weekly
9/15/94	M03A0271	Treated water discharge	Bi-weekly
9/19/94	M03A0272	Treated water discharge	Bi-weekly
9/22/94	M03A0273	Treated water discharge	Bi-weekly
9/26/94	M03A0274	Treated water discharge	Bi-weekly
9/29/94	M03A0275	Treated water discharge	Bi-weekly

TABLE 7-3

Treated Water
QC Failure Summary

Sample Date	Test	QC Failure	Explanation	Corrective Action
08-15-94	SV	MS Recov.	MS recovery for Naphthalene was outside QC limits on both the MS and MSD.	None required - matrix effect indicated.
08-15-94	SV	IS Recov.	IS Chrysene-d12 and Perylene-d12 response was outside QC limits on samples -01, MS and MSD	None required - matrix effect indicated by MS recovery failure and confirmed by internal std. failures.
08-15-94	SV	SU Recov.	SU Phenol-d5 and 2,4,6-Tribromophenol recovery were outside QC limits on sample -01 MS.	None required - matrix effect indicated by MS recovery failure and confirmed by internal std. failures.
08-18-94	SV	SU Recov.	SU Phenol-d5 recovery was outside QC limits on sample -01, MS and MSD.	None required - matrix effect indicated.
08-18-94	PCB	SU Recov.	SU TCX recovery on column 1 was outside QC limits on the blank associated with this sample.	None required - SU TCX recovery for column 2 was within QC limits.
08-18-94	PCB	SU Recov.	SU TCX recovery on column 2 was outside QC limits on the LCS associated with this sample.	None required - SU TCX recovery for column 1 was within QC limits.
08-22-94	SV	IS Recov.	IS Perylene-d12 response was outside QC limits on the blank associated with this sample.	The sample and blank were re-extracted and the all IS recoveries were within QC limits.
08-22-94	SV	SU Recov.	SU 2,4,6-Tribromophenol was outside QC limits on sample -01.	None required - one failure on base and acid surrogates are allowed.
08-25-94	SV	SU Recov.	SU 2,4,6-Tribromophenol was outside QC limits on sample -01, MS and MSD; SU phenol-d5 was outside QC limits on sample MS and MSD; SU 2-Fluorbiphenyl was outside QC limits on sample MS.	None required - matrix effect indicated.
08-25-94	SV	MS Recov.	MS recovery for Naphthalene was outside QC limits on both the MS and MSD.	None required - matrix effect indicated. RPD was within limits and Naphthalene recovery on the LCS was within QC limits.
08-29-94	SV	MS Recov.	MS recovery for Naphthalene was outside QC limits on both the MS and MSD.	None required - matrix effect indicated. RPD was within limits and Naphthalene recovery on the LCS was within QC limits.
09-05-94	SV	MS Recov.	MS recovery for Naphthalene was outside QC limits on both the MS and MSD.	None required - matrix effect indicated. RPD was within QC limits and Naphthalene recovery on the LCS was within QC limits.

7.2.3 Completeness Summaries

Tables 7-4 through 7-8 summarize completeness values for VOA, SVA, PCBs, Metals and miscellaneous parameters on treated water samples.

VOA (Table 7-4)

A total of 8 VOA sample sets have been validated with all categories meeting Project Completeness Goals.

SVA (Table 7-5)

A total of 8 SVA sample sets have been validated for this time period. All categories meet or exceed Project Completeness Goals with the exception of those listed in Table 7-5.

PCBs (Table 7-6)

A total of 8 PCB sample sets have been validated for this time period with all samples, meeting data quality objectives. All categories meet or exceed Project Completeness Goals.

Metals (Table 7-7)

A total of 8 sample sets have been validated for this time period. Project Completeness Goals are met or exceeded in all categories.

Miscellaneous Parameters (Table 7-8)

A total of 8 sample sets have been validated for this time period. Project completeness goals are met or exceeded in all categories.

TABLE 7-4

Completeness Summary
M03A Treated Water
Volatile Organics Analyses

SAMPLE DATE SET NUMBER	M03A0262 through M03A0269	Project to Date	PROJECT GOAL
Analysis Holding Time	100	100	100
12 Hour Window	100	100	100
SU Check	100	93	90
SU1 (d4-1,2-DCE)	100	97	90
SU2 (d8-Toluene)	100	97	90
SU3 (4-BFB)	100	99	90
IS Check	100	100	90
IS1 (BrClMethane)	100	100	90
IS2 (1,4-DiFlBenzene)	100	100	90
IS3(d5-ClBenzene)	100	100	90
Sample RT/RRT Check	100	*	
Vinyl Chloride			
Accuracy	100	99	90
Precision	100	99	90
Benzene			
Accuracy	100	99	90
Precision	100	100	90
No Group Matrix Effect	100	*	90
No Sample Matrix Effect	100	*	90
Tune Check	100	*	
Overall ICAL Check	100	*	
Overall CCAL Check	100	*	
Overall Lab Blank Check	100	*	

* - Level II QC checks were performed on 10% of samples prior to 6/14/93. PTD completeness values do not apply to these checks.

TABLE 7-5

Completeness Summary
M03A Treated Water
Semivolatile Organic Analyses

SAMPLE DATE SET NUMBER	M03A0262 through M03A0269	Project to Date	PROJECT GOAL
Extract Holding Time	100	100	100
Analysis Holding Time	100	100	100
12 Hour Window	100	100	100
SU Check	**100**	**94**	**90**
SU1 (2-FlPhenol)	100	95	90
SU2 (d5-Phenol)	63	92	90
SU3 (d5-Nitrobenz)	100	97	90
SU4(2-FlBiphenyl)	100	98	90
SU5(2,4,6-TBPh)	63	93	90
SU6(d14-Terphen)	100	96	90
IS Check	**100**	**95**	**90**
IS1 (d4-1,4-DiClBenz)	100	100	90
IS2 (d8-Naph)	100	100	90
IS3 (d10-Acenaph)	100	100	90
IS4 (d10-Phenanth)	88	100	90
IS5 (d12-Chrysene)	100	97	90
IS6 (d12-Perylene)	88	95	90
Sample RT/RRT	100	*	*
Napthalene			
Accuracy	0	98	90
Precision	100	99	90
No Group Matrix Effect	100	100	90
No Sample Matrix Effect	0	90	90
Tune Check	100	*	*
Overall ICAL Check	100	*	*
Overall CCAL Check	100	*	*
Overall Lab Blank Check	100	*	*

* - Level II QC checks were performed on 10% of samples prior to 6/14/93.
PTD completeness values do not apply to these checks.

TABLE 7-6

Completeness Summary
M03A Treated Water
PCB Analyses

SAMPLE DATE SET NUMBER	M03A0262 through M03A0269	Project to Date	PROJECT GOAL
Extract Holding Time	100	100	100
Analysis Holding Time	100	100	100
12 Hour Window	100	100	100
SU Check - Column A	100	99	90
SU1 (DCBP)	100	82	NS
SU2 (TCMX)	100	96	NS
SU Check - Column B	100	97	90
SU1 (DCBP)	100	83	NS
SU2 (TCMX)	100	98	NS
SU Check - Column A or B	100	98	90
Aroclor 1242			
Accuracy	100	96	90
Precision	100	97	90
Overall ICAL Check	100	*	
Overall 1st CCAL Check	100	*	
Overall 2nd CCAL Check	100	*	
Overall Lab Blank Check	100	*	

* - Level II QC checks were performed on 10% of samples prior to 6/14/93.
PTD completeness values do not apply to these checks.

TABLE 7-7

Completeness Summary
M03A Treated Water
Metals Analyses

SAMPLE DATE SET NUMBER	M03A0262 through M03A0269	PROJECT GOAL
ANALYTE: BARIUM		
MS Accuracy	100	95
DUP Precision/Difference	100	95
No Matrix Interference*	100	NA
Prep Blank Check	100	100
Lab Control Spike Check	100	100
ANALYTE: CADMIUM		
MS Accuracy	100	95
DUP Precision/Difference	W	95
No Matrix Interference*	100	NA
Prep Blank Check	100	100
Lab Control Spike Check	100	100
ANALYTE: CHROMIUM		
MS Accuracy	100	95
DUP Precision/Difference	W	95
No Matrix Interference*	100	NA
Prep Blank Check	100	100
Lab Control Spike Check	100	100
ANALYTE: COPPER		
MS Accuracy	100	95
DUP Precision/Difference	100	95
No Matrix Interference*	100	NA
Prep Blank Check	100	100
Lab Control Spike Check	100	100
ANALYTE: LEAD		
MS Accuracy	100	95
DUP Precision/Difference	100	95
No Matrix Interference*	100	NA
Prep Blank Check	100	100
Lab Control Spike Check	100	100

W - All samples waived due to low response

* Matrix interference is indicated by:
Furnace analyses - failure of analytical spike or low MSA coefficient
ICP analyses - failure of serial dilution

TABLE 7-7 (Continued)

Completeness Summary
M03A Treated Water
Metals Analyses

SAMPLE DATE SET NUMBER	M03A0262 through M03A0269	PROJECT GOAL
ANALYTE: MANGANESE		
MS Accuracy	100	95
DUP Precision/Difference	100	95
No Matrix Interference*	100	NA
Prep Blank Check	NA	100
Lab Control Spike Check	100	100
ANALYTE: NICKEL		
MS Accuracy	100	95
DUP Precision/Difference	W	95
No Matrix Interference*	100	NA
Prep Blank Check	100	100
Lab Control Spike Check	100	100
ANALYTE: SILVER		
MS Accuracy	100	95
DUP Precision/Difference	W	95
No Matrix Interference*	100	NA
Prep Blank Check	100	100
Lab Control Spike Check	100	100
ANALYTE: ZINC		
MS Accuracy	100	95
DUP Precision/Difference	100	95
No Matrix Interference*	100	NA
Prep Blank Check	NA	100
Lab Control Spike Check	100	100
ANALYTE: MERCURY		
MS Accuracy	100	95
DUP Precision/Difference	W	95
No Matrix Interference*	100	NA
Prep Blank Check	100	100
Lab Control Spike Check	100	100

W - All samples waived due to low response

* Matrix interference is indicated by:
Furnace analyses - failure of analytical spike or low MSA coefficient
ICP analyses - failure of serial dilution

TABLE 7-7 (Continued)

Completeness Summary
M03A Treated Water
Metals Analyses

SAMPLE DATE SET NUMBER	M03A0262 through M03A0269	PROJECT GOAL
ANALYTE:ARSENIC		
MS Accuracy	100	95
DUP Precision/Difference	100	95
No Matrix Interference*	100	NA
Prep Blank Check	100	100
Lab Control Spike Check	100	100
ANALYTE: SELENIUM		
MS Accuracy	100	95
DUP Precision/Difference	100	95
No Matrix Interference*	100	NA
Prep Blank Check	100	100
Lab Control Spike Check	100	100

W - All samples waived due to low response

* Matrix interference is indicated by:
Furnace analyses - failure of analytical spike or low MSA coefficient
ICP analyses - failure of serial dilution

TABLE 7-8

Completeness Summary
M03A Treated Water
Miscellaneous Parameters Analyses

SAMPLE DATE SET NUMBER	M03A0262 through M03A0269	Project to Date	PROJECT GOAL
PARAMETER: TOC			
Analysis Hold Time	100	100	100
MS Accuracy	100	100	NA
DUP Precision	100	100	NA
PARAMETER: OILS			
Analysis Hold Time	100	100	100
MS Accuracy	100	100	NA
DUP Precision	100	100	NA
PARAMETER: TSS			
Analysis Hold Time	100	100	100
MS Accuracy	NA	NA	NA
DUP Precision	100	100	NA

8.0 SITE MAINTENANCE

8.1 Summary of Activities

8.1.1 General Housekeeping

The site safety and housekeeping inspections and responses kept grounds safe and attractive for employees and visitors. The entire project was inspected twice per week, with written inspection reports issued and appropriate corrective action taken.

8.1.2 Purchasing

All purchases were covered by written requisitions and purchase orders. Purchase of chemicals is now reduced to groundwater treatment and insitu remediation.

Contracts were awarded for: 1) two new potable water wells, and 2) bulk carbon for the GWT plant.

8.1.3 Equipment Maintenance

Routine preventive and production maintenance was performed on all equipment. There were no emergency maintenance jobs.

Pressurized hose connections were replaced.

8.2 Visitors

The following visitors were recorded at the site during September:

September 2:	Vicki Rodden, RRC
	Hoyt Clark, OS of A
September 3:	Carlos Prago, Graco

	Viktor Prago, Graco
September 7:	Bill Jaeger, Energy
September 8:	Greg Brewer, AATS GP Holliman, ARCO Dave Ramsden, ENSR Jay Delahoussaye, ENSR
September 12:	A. Robinson, ARCO John Hellewytu, ARCO
September 13:	J. Lara, Wholesale Electric
September 14:	Tom Bauer, Palmer of Houston
September 15:	Gene Murphy, local resident
September 16:	Terry Gulliver, AHA
September 17:	(b) (6) local resident Alain Simon, Smith Security
September 20:	Buddy Spretz, Emtech B. Kettenbrink, Bamko Surplus
September 21:	William F. Naylor, Norit Americas, Inc. Ricky Creel, Norit Americas, Inc. Chan Thibodeaux, Aquatic
September 23:	Kay Crouch, CESI Greg Crouch, CESI Wayne Crouch, CESI Leroy Medford, Loflin Mike Cooper, Loflin

Dan Ornelas, Loflin
Ron Hebert, Loflin

September 26: (b) (6) local resident
local resident

September 28: James Sher, TNRCC
Larry Wright, EPA
Ernest Tradue, EPA

September 29: Ian Pearson, AHA

8.3 Emergency Equipment

8.3.1 Flood Gate Test

The exclusion wall gate was closed on September 22, 1994 with a good seal noted and recorded.

8.3.2 P-8 Auxiliary Pump

P-8 Auxiliary Pump was exercised and serviced September 23, 1994.

8.3.3 Fire Extinguishers

All fire extinguishers were inspected and certified.

8.4 Security

Smith Security provides 24-hour security at the FLTG site, including the south side of Gulf Pump Road; all site areas are checked hourly. Incidents reported by Security in September:

1. Accidental discharge of firearm.
2. Security officer was replaced due to incident.

8.5 Operator Training

All training is documented and records are maintained on site. Eight-Hour OSHA Refresher course was conducted in September. All operations personnel and contractors have completed annual update. Semi-annual physicals are scheduled for October and November.

8.6 Data Management

Data base programming is fully operational. Data is entered on a daily basis.

8.7 Personnel Monitoring

Results of personnel monitoring conducted during September are included in Table 8-1.

8.8 OVM System

The meteorological station was operational.

Work areas are being monitored daily with Organic Vapor Monitor 580A.

8.9 *Repository*

Records from the September review are listed in Attachment 8A.

TABLE 8-1

On-Site Employee Contaminant Limits
(From OSHA 29 CFR 1910 Subpart Z)

Compound	PEL 8 hour PPM	M01D0046 14-Sep-94 GWT Operator		M01D0046 14-Sep-94 Rochem Oper.		M01D0046 14-Sep-94 Well Operator	
		% of PEL	PPM	% of PEL	PPM	% of PEL	PPM
Chloromethane	50	0.000	0.000	0.000	0.000	0.000	0.000
Bromomethane	5	0.000	0.000	0.000	0.000	0.000	0.000
Vinyl chloride	1	0.000	0.000	0.000	0.000	0.000	0.000
Chloroethane	1000	0.000	0.000	0.000	0.000	0.000	0.000
Dichloromethane	50	0.000	0.000	0.000	0.000	0.000	0.000
Acetone	750	0.000	0.000	0.002	0.011	0.002	0.012
Carbon disulfide	10	0.000	0.000	0.000	0.000	0.000	0.000
1,1-Dichloroethene	5	0.000	0.000	0.000	0.000	2.201	0.110
1,1-Dichloroethane	100	0.001	0.001	0.000	0.000	0.000	0.000
trans-1,2-Dichloroethe	200	0.003	0.006	0.004	0.007	0.002	0.004
Chloroform	10	0.068	0.007	0.005	0.000	0.015	0.002
1,2-Dichloroethane	10	0.016	0.002	0.000	0.000	0.005	0.001
2-Butanone	200	0.001	0.003	0.003	0.006	0.000	0.000
1,1,1-Trichloroethane	350	0.005	0.019	0.000	0.001	0.098	0.343
Carbon Tetrachloride	5	0.010	0.001	0.005	0.000	0.008	0.000
Vinyl acetate	10	0.000	0.000	0.000	0.000	0.000	0.000
Bromodichloromethane			0.000		0.000		0.000
1,2-Dichloropropane	75	0.000	0.000	0.000	0.000	0.000	0.000
cis-1,3-Dichloropropen	1	0.000	0.000	0.000	0.000	0.000	0.000
Trichloroethene	50	0.001	0.001	0.001	0.001	0.000	0.000
Dibromochloromethane			0.000		0.000		0.000
1,1,2-Trichloroethane	10	0.000	0.000	0.000	0.000	0.000	0.000
Benzene	1	0.183	0.002	0.252	0.003	0.196	0.002
trans-1,3-Dichloroprop	1	0.000	0.000	0.000	0.000	0.000	0.000
2-Chloroethylvinyl ether			0.000		0.000		0.000
Bromoform	0.5	0.064	0.000	0.000	0.000	0.000	0.000
4-Methyl-2-pentanone	50	0.001	0.000	0.000	0.000	0.000	0.000
2-Hexanone	5	0.012	0.001	0.000	0.000	0.000	0.000
Tetrachloroethene	50	0.001	0.000	0.001	0.000	0.000	0.000
1,1,2,2-Tetrachloroet	1	0.072	0.001	0.000	0.000	0.000	0.000
Toluene	100	0.003	0.003	0.003	0.003	0.004	0.004
Chlorobenzene	10	0.000	0.000	0.000	0.000	0.000	0.000
Ethylbenzene	100	0.001	0.001	0.001	0.001	0.001	0.001
Styrene	50	0.001	0.001	0.001	0.000	0.000	0.000
Xylene (total)	100	0.001	0.001	0.001	0.001	0.002	0.002
Hexane			0.122		0.004		0.010

ATTACHMENT 8A

Repository Status Report: September, 1994

REPOSITORY STATUS REPORT: September, 1994

At the Rice University Library...

1. Remedial Investigation Report April, 1985
2. Remedial Investigation Report Appendices, Volume II, April, 1985
3. Remedial Investigation Report June, 1986 (Updated from April, 1985)
4. Remedial Investigation Report Appendices, Volume I, February, 1986 (Revised June, 86)
5. Remedial Investigation Report Appendices, Volume II, February, 1986 (Revised June, 1986)
6. Remedial Investigation Report Appendices, Volume III, February, 1986
7. 1986 Field Investigation and Supplemental Remedial Investigation Report Volume I, December, 1986
8. 1986 Field Investigation and Supplemental Remedial Investigation Report French Limited Site Volume II, Appendices December, 1986
9. 1986 Field Investigation Hydrology Report, December 19, 1986
10. Endangerment Assessment Report February, 1987
11. Endangerment Assessment Report April 1987 (Updated from February, 1987)
12. Feasibility Study Report, March 1987
13. In Situ Biodegradation Demonstration Report Volume I Executive Summary, October 30, 1987 Revised 11-11-87
14. In Situ Biodegradation Demonstration Supplemental Report French Limited Site Volume I, November 30, 1987
15. In Situ Biodegradation Demonstration Report Volume II, October 30, 1987 (Revised February 1, 1988 at Site only)
16. In Situ Biodegradation Demonstration Supplemental Report French Limited Site Volume II, November 30, 1987 + Appendices

17. In Situ Biodegradation Demonstration Report Volume III Appendices, October 30, 1987

18. In Situ Biodegradation Demonstration Report Volume III, Appendices, Supplemental Report, November 30, 1987

19. In Situ Biodegradation Demonstration Report French Limited Site, Volume IV October 30, 1987 + Appendices

20. In Situ Biodegradation Demonstration Supplemental Report French Limited Site, Volume IV November 30, 1987 + Appendices

21. In Situ Biodegradation Demonstration Report French Limited Site Volume V, October 30, 1987

22. In Situ Biodegradation Demonstration Report French Limited Site Volume V Appendices, November 30, 1987 - Supplemental Report

23. In Situ Biodegradation Demonstration Report French Limited Site Volume VI Appendices, October 30, 1987

24. In Situ Biodegradation Demonstration Report French Limited Site Volume VII Appendices, October 30, 1987

25. In Situ Biodegradation Demonstration Report French Limited Site Volume VIII Appendices, October 30, 1987

26. In Situ Biodegradation Demonstration Report French Limited Site Volume IX Appendices, October 30, 1987

27. In Situ Biodegradation Demonstration Report French Limited Site Volume X Appendices, October 30, 1987

28. In Situ Biodegradation Demonstration Report French Limited Site Volume XI Appendices, October 30, 1987

29. In Situ Biodegradation Demonstration Report French Limited Site Volume XII Appendices, October 30, 1987

30. In Situ Biodegradation Demonstration Report French Limited Site Volume XIII Appendices, October 30, 1987
    This volume is missing.

31. In Situ Biodegradation Demonstration Report French Limited Site Volume XIV Appendices, October 30, 1987

32. In Situ Biodegradation Demonstration Report French Limited Site Volume XV Appendices, October 30, 1987

33. In Situ Biodegradation Demonstration Report French Limited Site Volume XVI Appendices, October 30, 1987

34. In Situ Biodegradation Demonstration Report French Limited Site Volume XVII Appendices, October 30, 1987

35. In Situ Biodegradation Demonstration Report French Limited Site Volume XVIII Appendices, October 30, 1987

36. Proposed In Situ Biodegradation Demonstration French Limited Site Phase III, April, 1987

37. In Situ Bioremediation Demonstration French Limited April, 1987 Monthly Report, Equipment Evaluation Phase IV

38. In Situ Bioremediation Demonstration French Limited May, 1987 Monthly Report, Equipment Evaluation Phase IV

39. In Situ Bioremediation Demonstration French Limited June, 1987 Monthly Report, Equipment Evaluation Phase IV

40. In Situ Bioremediation Demonstration French Limited July, 1987 Monthly Report, Equipment Evaluation Phase IV

41. In Situ Bioremediation Demonstration French Limited August, 1987 Monthly Report, Equipment Evaluation Phase IV

42. In Situ Bioremediation Demonstration French Limited November, 1987 Monthly Report, Equipment Evaluation Phase IV

43. In Situ Bioremediation Demonstration French Limited December, 1987 Monthly Report, Equipment Evaluation Phase IV

44. In Situ Bioremediation Demonstration French Limited January, 1988 Monthly Report, Equipment Evaluation Phase IV

45. In Situ Bioremediation Demonstration French Limited February, 1988 Monthly Report, Equipment Evaluation Phase IV

46. In Situ Bioremediation Demonstration French Limited March, 1988 Monthly Report, Equipment Evaluation Phase IV

47. In Situ Bioremediation Demonstration French Limited April, 1988 Monthly Report, Equipment Evaluation Phase IV

48. In Situ Biodegradation Demonstration French Limited May/June 1988 Monthly Report, Equipment Evaluation Phase IV

49. In Situ Bioremediation Demonstration French Limited July, 1988 Monthly Report, Equipment Evaluation Phase IV

50. In Situ Bioremediation Demonstration French Limited August, 1988 Monthly Report, Equipment Evaluation Phase IV

51. In Situ Bioremediation Demonstration French Limited September, 1988 Monthly Report, Equipment Evaluation Phase IV

52. Supplemental Biodegradation Equipment Evaluation French Limited Site - Phase IV, September 26, 1988

53. In Situ Biodegradation Demonstration Phase III Quality Assurance Project Plan for French Limited Site, March, 1987

54. Addendum to Quality Assurance Project Plan for the French Limited Site In Situ Biodegradation Demonstration Phase III, February 16, 1990

55. Site Safety and Health Plan French Limited Site - Phase III, April 1987 (Revision 2)

56. Remedial Action Plan Volume I - April, 1990

57. Remedial Action Plan Volume I - September, I990 (Updated from April, 1990)

58. Remedial Action Plan Volume II Quality Assurance April, 1990

59. Remedial Action Plan Volume II Quality Assurance September, 1990 (Updated from April 1990) Revised June 3, 1991

60. Remedial Action Plan Volume II Quality Assurance June, 1990 Appendix A - Quality Assurance Sampling Procedures and Appendix B - Analytical Methods - B.1 - B.53, September 22, 1989 Revised September 28, 1990

61. Remedial Action Plan Volume III - Health and Safety, July 20, 1990

62. Remedial Action Plan Volume IV - Spill and Volatile Organic Release Contingency Plan (April 6, 1990)

63. Remedial Action Plan Volume V - Shallow Aquifer and Subsoil Remediation Process Design, May, 1990
Page v.i.3 Missing

64. Remedial Action Plan Volume V - Shallow Aquifer and Subsoil Remediation Process Design, July 20, 1990, (Updated from May, 1990)

65. 1988 Equipment Evaluation Phase IV Report French Limited Site: Volume I, February 1,1990

66. 1988 Equipment Evaluation Phase IV Report French Limited Site: Volume II, February 1, 1990

67. 1988 Slough Investigation Report French Limited Site, October 1988

68. Ambient Air Impact Risk Assessment Report, May 5, 1989

69. Workplan for the Shallow Aquifer Pumping Tests for the French Limited Site, July 22, 1988
Page 80 Missing

70. French Limited Site Hurricane Gilbert Preparation Report, October, 1988

71. Potable Water Well Installation Report French Limited Site, December 7, 1988

72. Bioresidue Fixation Alternatives Evaluation Report French Limited Site March 20, 1989

73. Hydrogeologic Characterization Report, March 1989

74. Hydrogeologic Characterization Report - Appendices, March 1989

75. San Jacinto River May 19, 1989 Flood Event Report, June 1989

76. Post San Jacinto River May 1989 Flood Event Soils and Water Analysis Program - Volume I, August 16, 1989

77. Post San Jacinto River 1989 Flood Event Soil and Water Analysis Program Volume II Appendix A

78. Post San Jacinto River 1989 Flood Event Soil and Water Analysis Program Volume III Appendix A, August 16, 1989

79. Riverdale Lake Area Remediation Program August 15, 1989

80. Flood and Migration Control Wall Design Report, August 16, 1989

81. Flood and Migration Control Wall Design Report Appendix C Access Way Design, September, 1989

82. North Pit Remediation Report French Limited Site, November 6, 1989

83. Installation Report for Flood and Migration Control Wall, January 8, 1990

84. Installation Report for Flood and Migration Control Wall
Appendix A - ENSR Site Logs

85. Installation Report for Flood and Migration Control Wall
Appendix B - Inspection Reports

86. Installation Report for Flood and Migration Control Wall Appendix C - Pile Driving Inspection Report January 8, 1990

87. Flood Wall Gate Test Report French Limited Site, February 1990

88. French Limited Remediation Design Report - Executive Summary Bioremediation/Shallow Aquifer, July, 1991

89. Shallow Aquifer and Subsoil Remediation Facilities Design Report Volume I of III - Summary Report and Appendices A-H, July 1991

90. Shallow Aquifer and Subsoil Remediation Facilities Design Report Volume II of III - Appendices I-M, June 1991

91. Shallow Aquifer and Subsoil Remediation Facilities Design Report Volume III of III - Appendices N-P, June 1991

92. Bioremediation Facilities Design Report Volume II of IV Appendices, Reports and Calculations (March 20, 1991)

93. Bioremediation Facilities Design Report Volume III of IV
Appendix E - Design Specifications (March 20, 1991)

94. Bioremediation Facilities Design Report Volume IV of IV - Air Monitoring, March 20, 1991

95. Public Health Assessment for French Limited March 30, 1993 from U.S. Department of Health and Human Services

96. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 1, Report, Appendices A-E

97. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 2, Appendix F

98. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 3, Appendix F continued

99. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 4, Appendix G

100. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 5, Appendix H

101. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 6, Appendix H continued

102. Record of Public Meeting Regarding Remedial Investigation and Feasibility Study (5-21-87)

103. Summary of Remedial Alternative Selection 1988

104. Declaration for the Record of Decision 1988

105. Record of Public Meeting Regarding Remedial Investigation and Feasibility Study (2-11-88) (Updated from June 21, 1987)

106. Consent Decree between the Federal Government and the FLTG

107. French Limited Superfund Site Community Relations Revised Plan August, 1989 - Jacob's Engineering

108. Results of the French Limited Task Group Survey (Goldman and Company) April, 1987

109. Goldman Public Relations Clipping Report

110. BioGEE International, Inc., Project Report Biotreatability Study Using Isolated Indigenous Organisms, April, 1994

111. Field Evaluation of Biodegradation at the French Limited Site (Phase II) Volume I

112. Laboratory Evaluation of Biodegradation at the French Limited Site

113. French Limited Site Focused Feasibility Study (May 1987)

114. Monthly Progress Report, January 1992

115. Monthly Progress Report, January, 1992 Appendices A-C

116. Monthly Progress Report, January, 1992 Appendices E, F

117. Monthly Progress Report, January, 1992 Appendices G

118. Monthly Progress Report, February, 1992

119. Monthly Progress Report, February, 1992 Appendices A-B

120. Monthly Progress Report, February, 1992 Appendices C 1, C 2

121. Monthly Progress Report, February, 1992 Appendices D-E

122. Monthly Progress Report, March, 1992

123. Monthly Progress Report, March, 1992, Appendix A

124. Monthly Progress Report, April, 1992

125. Monthly Progress Report, April, 1992, Appendices A-B

126. Monthly Progress Report, May, 1992

127. Monthly Progress Report, May, 1992, Appendices A-B

128. Monthly Progress Report, June, 1992

129. Monthly Progress Report, June, 1992, Appendices A-B

130. Monthly Progress Report, July 1992

131. Monthly Progress Report, July 1992, Appendices A-B

132. Monthly Progress Report, July 1992, Appendices B1-B22 Vol. 1 of 3

133. Monthly Progress Report, July 1992, Appendices B1-B22 Vol. 2 of 3

134. Monthly Progress Report, July 1992, Appendices B1-B22 Vol. 3 of 3

135. Monthly Progress Report, August, 1992

136. Monthly Progress Report, August, 1992, Appendices A-B

137. Monthly Progress Report, September, 1992

138. Monthly Progress Report, September, 1992, Appendices A-B

139. Monthly Progress Report, October, 1992

140. Monthly Progress Report, October, 1992, Appendices A-B

141. Monthly Progress Report, November, 1992

142. Monthly Progress Report, November, 1992 Appendices A-B

143. Monthly Progress Report, December, 1992

144. Monthly Progress Report, December, 1992 Appendices A, B

145. Monthly Progress Report, January, 1993

146. Monthly Progress Report, February, 1993

147. Monthly Progress Report, March, 1993

148. Monthly Progress Report, April, 1993

149. Monthly Progress Report, May, 1993

150. Monthly Progress Report, June, 1993

151. Monthly Progress Report, July, 1993

152. Monthly Progress Report, August, 1993

153. Monthly Progress Report, September, 1993

154. Monthly Progress Report, October, 1993

155. Monthly Progress Report, November, 1993

156. Monthly Progress Report, December, 1993

157. Monthly Progress Report, January, 1994

158. Monthly Progress Report, February, 1994

159. *Monthly Progress Report, March, 1994*

160. Monthly Progress Report, April, 1994

161. Monthly Progress Report, May, 1994

162. Monthly Progress Report, June, 1994

163. Monthly Progress Report, July, 1994

164. Monthly Progress Report, August, 1994

At the Crosby library...

1. Remedial Investigation Report - June, 1986

2. Remedial Investigation Appendices Volume I June, 1986 Revised from Feb. 1986

3. Remedial Investigation Appendices Volume I I June, 1986 Revised from Feb. 1986

4. Remedial Investigation Appendices Volume III February, 1986
   Pages 1 and 2 of 10 Res. Engr Tab Missing
   Analytical Report Worksheet 7-8-9-10 Missing
   Pages 1 and 2 of 6 Missing
   Tab 9 H 1-8 Missing, H 11-19 Missing, Page 1 of 10 Missing
   Page 3 Worksheet Missing
   Tab 10 H 1-3 Missing, Page 3-6 of 6 Missing, Page 1-6 Missing
   Tab 12 Page 2-10 of 10 Missing

5. 1986 Field Investigation and Supplemental Remedial Investigation Report Volume I, December, 1986

6. 1986 Field Investigation and Supplemental Remedial Investigation Report Volume II, Appendices, December 1986

7. 1986 Field Investigation Hydrology Report, December 19, 1986

8. Feasibility Study Report, March 1987

9. Feasibility Study Report, March 1987

10. French Limited Site Focused Feasibility Study, May 1987

11. Endangerment Assessment Report February 1987

12. Endangerment Assessment Report April 1987

13. Endangerment Assessment Report April 1987

14. In Situ Biodegradation Demonstration Report Volume I Executive Summary October, 1987 (Revised 12-15-87)

15. In Situ Biodegradation Demonstration Report Volume II October 30, 1987

16. In Situ Biodegradation Demonstration Supplemental Report French Limited Site Volume I, November 30, 1987
    Missing Supplements to 5-6 and 7 to 10

17. In Situ Biodegradation Demonstration Supplemental Report French Limited Site Volume II, November 30, 1987 + Appendices

18. In Situ Biodegradation Demonstration Supplemental Report French Limited Site Volume III, November 30, 1987 + Appendices

19. In Situ Biodegradation Demonstration Supplemental Report French Limited Site Volume IV, November 30, 1987 -Appendices

20. In Situ Biodegradation Demonstration Supplemental Report French Limited Site Volume V - Appendices, November 30, 1987

21. Results of the French Limited Task Group Survey (Goldman and Company) April 1987

22. Goldman Public Relations Clipping Report

23. Consent Decree between the Federal Government and the FLTG

24. Consent Decree between the Federal Government and the FLTG

25. Laboratory Evaluation of Biodegradation at the French Limited Site, December 1986.

26. Field Evaluation of Biodegradation at the French Limited Site (Phase II) Volume I, March, 1987

27. Bioremediation Facilities Design Report Volume II of IV Appendices, Reports and Calculations March 20, 1991

28. Bioremediation Facilities Design Report Volume III of IV Appendix E - Design Specifications March 20, 1991

29. Bioremediation Facilities Design Report Volume IV of IV Air Monitoring, March 20, 1991

30. Remedial Action Plan Volume I, September 28, 1990

31. Remedial Action Plan Volume II - Quality Assurance, Revised June 3, 1991

32. Remedial Action Plan Volume II - Appendix A - Quality Assurance Sampling Procedures and Appendix B - Analytical Methods - B.1 - B.53, September 28, 1990

33. Remedial Action Plan Volume III - Health and Safety, July 20, 1990

34. Remedial Action Plan Volume V - Shallow Aquifer and Subsoil Remediation Process Design, July 20, 1990

35. Remedial Action Plan Volume V - Shallow Aquifer and Subsoil Remediation Process Design, July 20, 1990

36. Hydrogeologic Characterization Report, March 1989

37. Hydrogeologic Characterization Report Appendices, March 1989

38. Supplemental Biodegradation Equipment Evaluation French Limited Site - Phase IV, September 26, 1988

39. 1988 Equipment Evaluation Phase IV Report French Limited Site: Volume I, February 1, 1990

40. 1988 Equipment Evaluation Phase IV Report French Limited Site: Volume II, February 1, 1990

41. Site Safety and Health Plan French Limited Site - Phase III, April 1987 (Revision 2)

42. San Jacinto River May 19, 1989 Flood Event Report, June 1989

43. Post San Jacinto River May 1989 Flood Event Soils and Water Analysis Program Volume I, August 16, 1989

44. Post San Jacinto River 1989 Flood Event Soil and Water Analysis Program Volume II, Appendix A

45. Post San Jacinto River 1989 Flood Event Soil and Water Analysis Program Volume III, Appendix A, August 16, 1989

46. 1988 Slough Investigation Report French Limited Site, October 1988

47. Flood and Migration Control Wall Design Report, August 16, 1989

48. Flood and Migration Control Wall Design Report (Flood is spelled incorrectly on Volume Cover) + Appendix C - Access way Design September 1989

49. Installation Report for Flood and Migration Control Wall January 8, 1990

50. Installation Report for Flood and Migration Control Wall
Appendix A - ENSR Site Logs

51. Installation Report for Flood and Migration Control Wall
Appendix B - Inspection Reports

52. Installation Report for Flood and Migration Control Wall
Appendix C - Pile Driving Inspection Report January 8, 1990

53. Flood Wall Gate Test Report French Limited Site, February 1990

54. North Pit Remediation Report French Limited Site, November 6, 1989

55. Workplan for the Shallow Aquifer Pumping Tests for the French Limited Site, July 22, 1988
(Additional Title - Pumping Test Program for Shallow Alluvial Aquifer Zone)

56. French Limited Site Hurricane Gilbert Preparation Report October, 1988

57. Riverdale Lake Area Remediation Program, August 15, 1989

58. Addendum to Quality Assurance Project Plan for the French Limited Site In Situ Biodegradation Demonstration Phase III, February 16, 1990

59. Potable Water Well Installation Report French Limited Site, December 7, 1988

60. Bioresidue Fixation Alternatives Evaluation Report French Limited Site
March 20, 1989

61. Ambient Air Impact Risk Assessment Report, May 5, 1989

62. Shallow Aquifer and Subsoil Remediation Facilities Design Report Volume I of III - Summary Report and Appendices A-H, July 1991

63. Shallow Aquifer and Subsoil Remediation Facilities Design Report Volume II of III - Appendices I-M, June 1991

64. Shallow Aquifer and Subsoil Remediation Facilities Design Report Volume III of III - Appendices N-P, June 1991

65. French Ltd. Remediation Design Report Executive Summary Bioremediation Shallow Aquifer July 1991

66. BioGEE International, Inc., Project Report Biotreatability Study Using Isolated Indigenous Organisms, April 15, 1994

67. Black EPA Binder

68. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 1, Report, Appendices A-E

69. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 2, Appendix F

70. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 3 Appendix F continued

71. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 4, Appendix G

72. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 5, Appendix H

73. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 6, Appendix H continued

74. Equipment Evaluation Phase IV Report November, I987 Monthly Report

75. Equipment Evaluation Phase IV Report December, I987 Monthly Report

76. Microfiche Field Reports 1988 -small box

77. Monthly Progress Report, January, 1992

78. Monthly Progress Report, January, I992, Appendices A-C

79. Monthly Progress Report, January, 1992, Appendices E-F

80. Monthly Progress Report, January, 1992, Appendix G

81. Monthly Progress Report, February, 1992

82. Monthly Progress Report, February, 1992, Appendices A-B

83. Monthly Progress Report, February, 1992, Appendices C-1

84. Monthly Progress Report, February, 1992, Appendices C-2

85. Monthly Progress Report, February, 1992 , Appendices D-E

86. Monthly Progress Report, March, 1992

87. Monthly Progress Report, March, 1992, Appendix A

88. Monthly Progress Report, April, 1992

89. Monthly Progress Report, April, 1992, Appendices A-B

90. Monthly Progress Report, May, 1992

91. Monthly Progress Report, May, 1992, Appendices A-B

92. Monthly Progress Report, June, 1992

93. Monthly Progress Report, June, 1992, Appendices A-B

94. Monthly Progress Report, July, 1992

95. Monthly Progress Report, July, 1992, Appendices A-B

96. Monthly Progress Report, July, 1992, Appendices B1-B22 Vol. 1 of 3

97. Monthly Progress Report, July, 1992, Appendices B1-B22 Vol. 2 of 3

98. Monthly Progress Report, July, 1992, Appendices B1-B22 Vol. 3 of 3

99. Monthly Progress Report, August, 1992

100. Monthly Progress Report, August, 1992, Appendices A-B

101. Monthly Progress Report, September, 1992

102. Monthly Progress Report, September, 1992, Appendices A-B

103. Monthly Progress Report, October, 1992

104. Monthly Progress Report, October, 1992, Appendices A-B

105. Monthly Progress Report, November, 1992

106. Monthly Progress Report, November, 1992, Appendices A-B

107. Monthly Progress Report, December, 1992

108. Monthly Progress Report, December, 1992, Appendices A-B

109. Monthly Progress Report, January, 1993

110. Monthly Progress Report, February, 1993

111. Monthly Progress Report, March, 1993

112. Monthly Progress Report, April, 1993

113. Monthly Progress Report, May, 1993

114. Monthly Progress Report, June, 1993

115. Monthly Progress Report, July, 1993

116. Monthly Progress Report, August, 1993

117. Monthly Progress Report, September, 1993

118. Monthly Progress Report, October, 1993

119. Monthly Progress Report, November, 1993

120. Monthly Progress Report, December, 1993

121. Monthly Progress Report, January, 1994

122. Monthly Progress Report, February, 1994

123. Monthly Progress Report, March, 1994

124. Monthly Progress Report, April, 1994

125. Monthly Progress Report, May, 1994

126. Monthly Progress Report, June, 1994

127. Monthly Progress Report, July, 1994

128. Monthly Progress Report, August, 1994

12 Large Brown Folders:

1. Administrative Record Index - 2 folders
   Administrative Record 09-26-79 thru 05-29-83
   Administrative Record 06-03-83 thru 11-28-83
   Administrative Record 02-28-84
   Administrative Record 03-09-84
   Technical Comments on Remediation Investigation Report 2-84
   Supplemental Investigation - Resource Engr. 1-84
   Administrative Record 3-9-84

2. Administrative Record 08-31-84
   Administrative Record 10-29-84 thru 01-22-85
   French Ltd. Technical and Regulatory Concepts for In-Place Closure, 09-84
   Supplementary Investigation, May 1984
   French Ltd. Field Activities Work Plan, February 1985
   Supplementary Investigation Attachments, May 1985

3. Administrative Record 02-04-85
   Remedial Investigation, Vol. I Report, April 1985
   Remedial Investigation, Vol. II Appendices, April 1985

4. Administrative Record 04-08-85 thru 11-26-85
   Administrative Record 02-14-86 thru 04-04-86
   Technical Report for Resource Engineering, 12-03-85
   Appendix QA Program for French Ltd., 12-18-85
   1985 Field Investigation Report Appendices, January, 1986
   1985 Field Investigation Report , January, 1986

5. Administrative Record 04-01-86
   Remedial Investigation Report Appendices, Vol. II, April, 1986

6. Administrative Record 4-1-86

7. Administrative Record 05-08-86 thru 05-12-86
   Administrative Record 06-01-86
   Administrative Record 01-05-87
   Remedial Investigation Report, June 1986

Laboratory Evaluation of Biodegradation, 12-86
1986 Field Investigation Hydrology Report, 12-86
Endangerment Assessment Report, 2-87

8. Feasibility Study, March 1987

9. Administrative Report 03-11-87 thru 03-25-87
Administrative Report 4-1-87
Administrative Report 4-7-87
In Situ Biodegradation Demonstration Phase III QA Project Plan 3-87
Endangerment Assessment Report, 4-87
Proposed In Situ Biodegradation Demonstration French Limited Site Phase III 4-87

10. Administrative Report 4-15-87 thru 5-I-87
Administrative Report 5-21-87 thru 7-2-87
French Limited Focused Feasibility Study, ERT 5-87
Revised Field Evaluation of Biodegradation at French Site Phase II Vol. I
-Revised 7-10-87

11. Administrative Report 7-20-87 - 11-23-87
Administrative Report Undated Documents 000122-000134
In Situ Biodegradation Demonstration Report Vol. I Executive Summary 10-87
French Limited Site Work Plan Vol. I Project Activities and Sample Plan

12. Texas Air Control Board Regulations I thru IX
Standard Exemption List
Application for Permit

During the month of September, the status of both libraries have been reviewed and the above information found to be accurate.

9.0 WETLANDS RESTORATION

9.1 Summary of Activities and Progress

The agencies approved the Brownwood design.

Continued to identify and quantify sources of the project vegetation.

Responded to State Archeology comments on the Corp. of Engineers 404 permit application.

Corp. of Engineers issued the 404 permit for the Brownwood project.

Received four bids for the site field work; evaluated the bids and selected Remedial Construction based on cost and qualifications.

Developed offer for the city to buy the remaining 1/3 interest in six lots.

9.2 Problem Areas and Solutions

Problem	Recommended Solution
Land ownership status.	Survey site in detail to precisely define status. Baytown to purchase full ownership of critical lots.
Impact on archeological artifacts.	Archeological survey of the entire site.
Maintain adequate buffer zone.	Baytown will close perimeter roads to vehicle traffic.

9.3 Problems Resolved

Problem	Solution
Secure necessary permits	Corp. of Engineers issued 404 permit.

9.4 Deliverables Submitted

Archeological survey response to Corp. of Engineers.

9.5 Upcoming Events and Activities

Baytown to acquire selected lots if available at reasonable terms.

Start civil work on site.

Identify and locate flora species.

Develop detailed cost estimate for Brownwood.

Develop restoration schedule.

Develop forecast of maintenance requirements.

Develop community relations plan.